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Rio Blanco Oil Shale Company

MODULAR DEVELOPMENT PHASE MONITORING REPORT THIRTEEN

Volume 2 of 2

January – December 1983

Year End Report

Gulf Oil Corporation / Standard Oil Company (Indiana)
'A General Partnership'
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RIO BLANCO OIL SHALE COMPANY
MODULAR DEVELOPMENT PHASE
MONITORING REPORT 13

January - December 1983

YEAR-END REPORT

APPENDICES

Prepared by:
RIO BLANCO OIL SHALE COMPANY
AURORA, COLORADO

April 30, 1984

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Atmospheric Studies

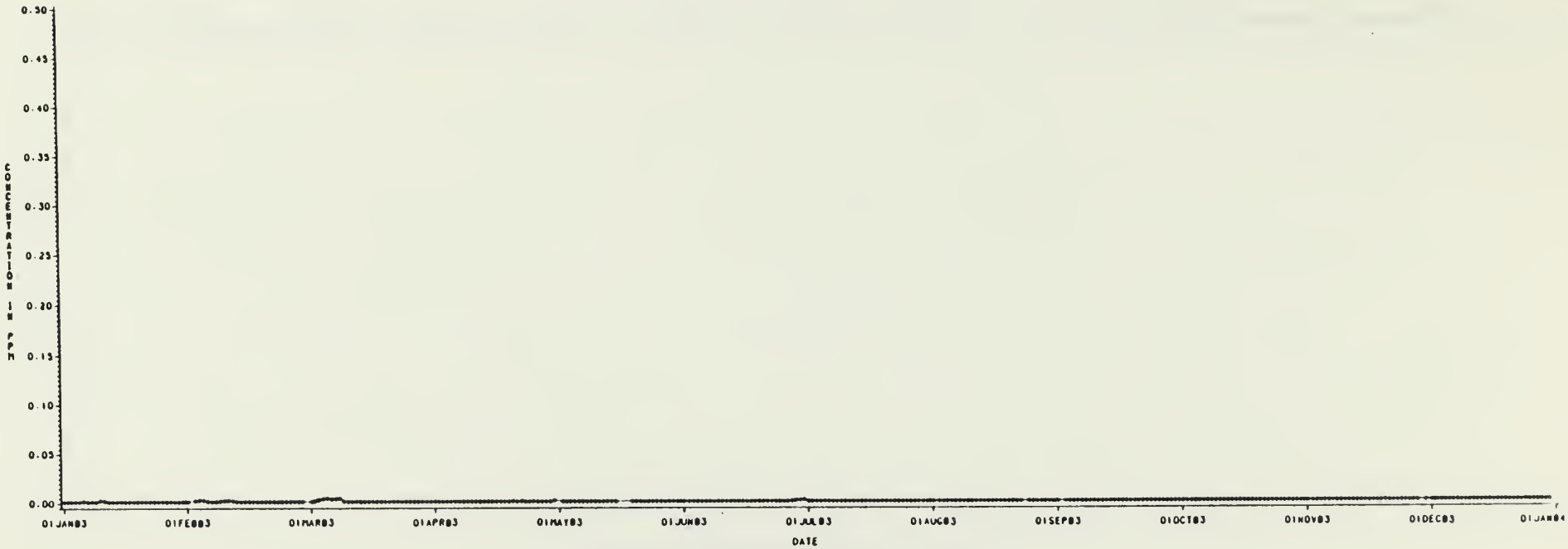
APPENDIX 2-1

Air Quality Data

APPENDIX 2-1.1

Plots of Gaseous Constituents Data at Site 1

RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
SULFUR DIOXIDE DATA (PPM) - SITE 1



RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
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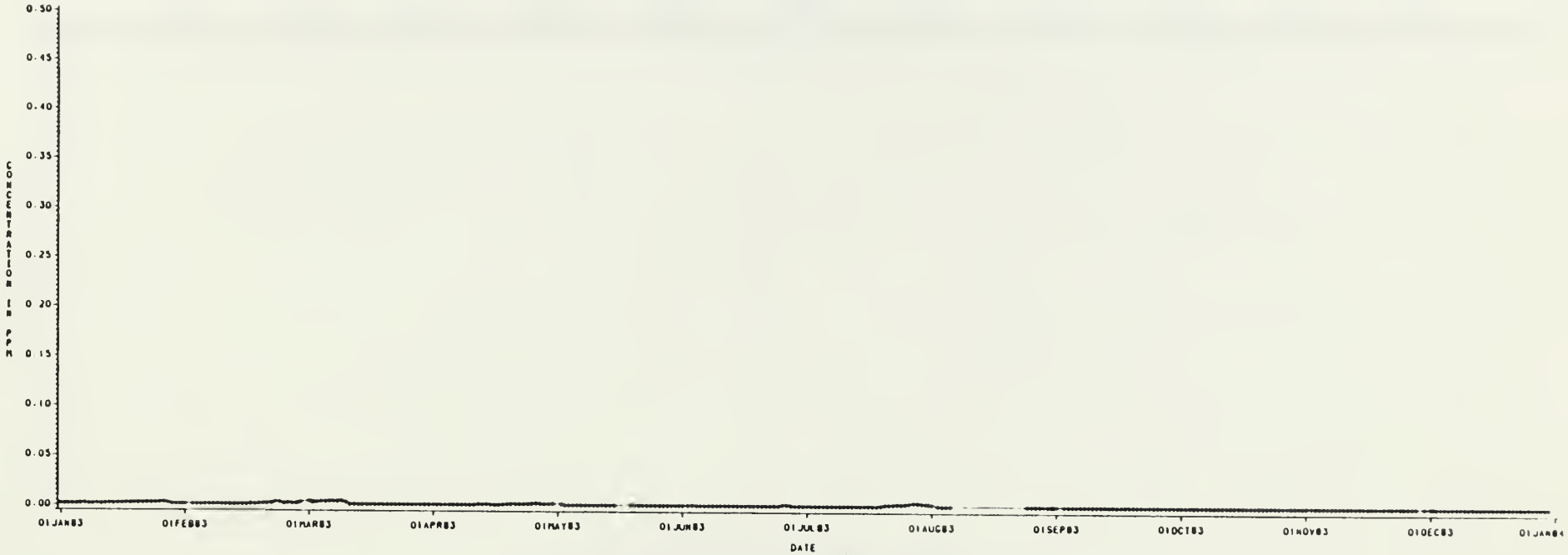

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AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
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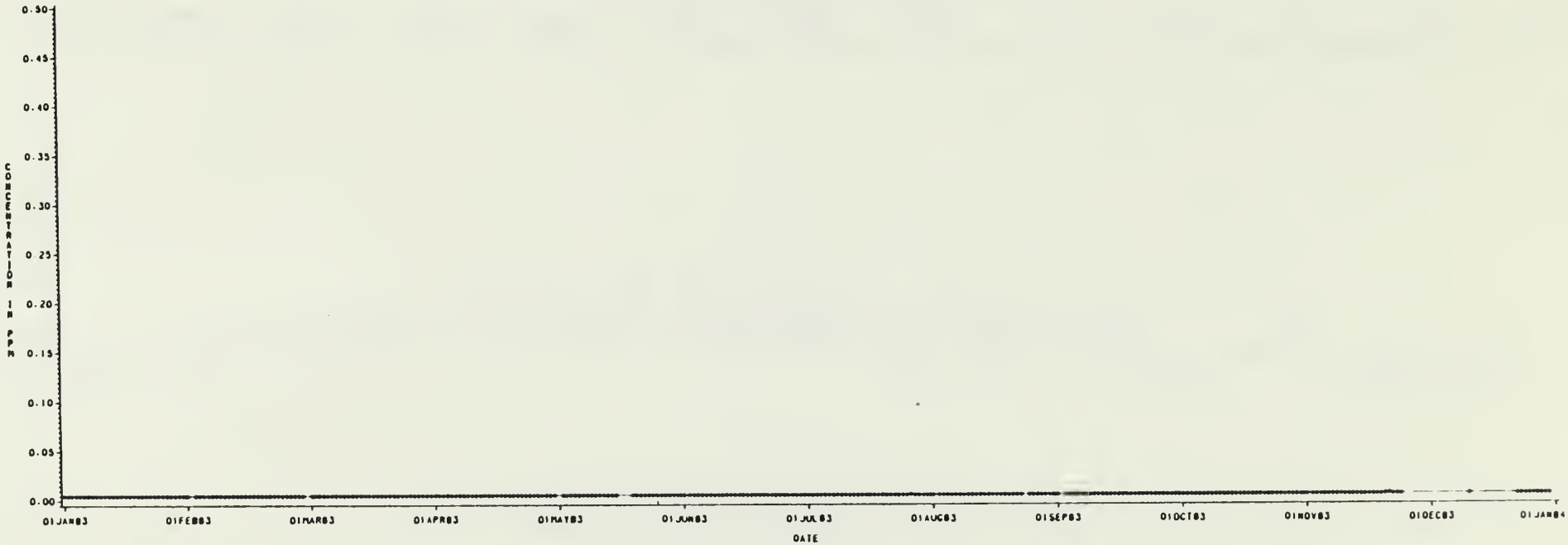

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AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
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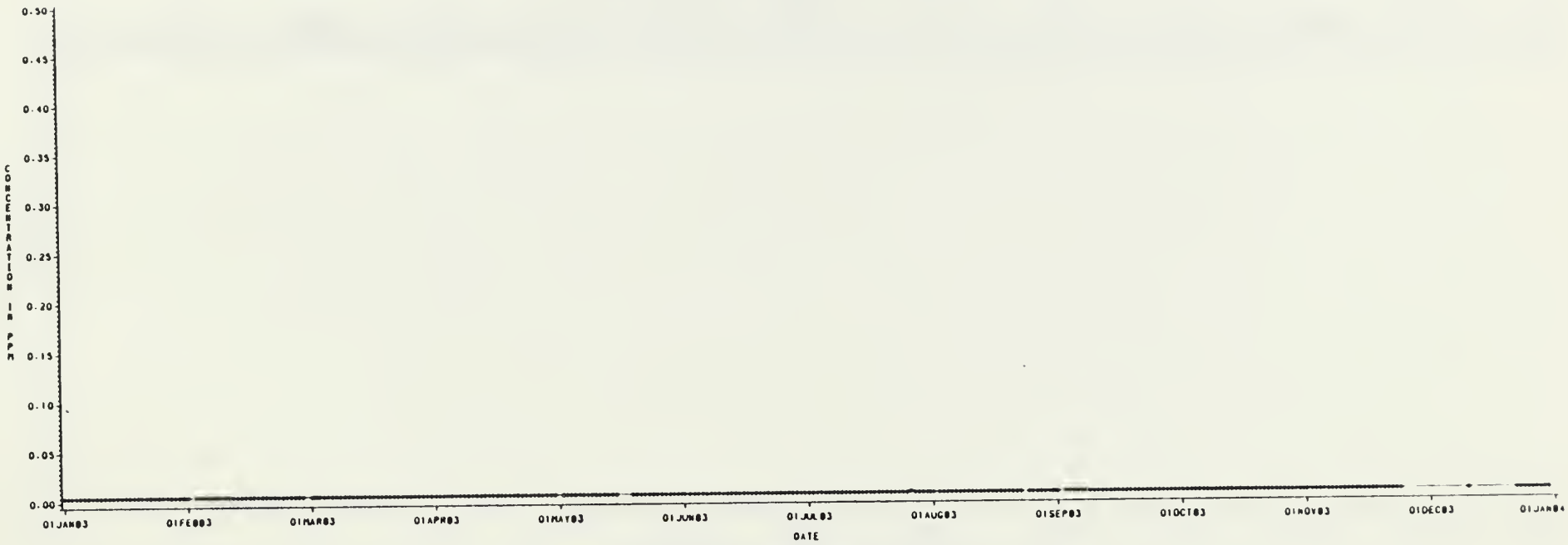

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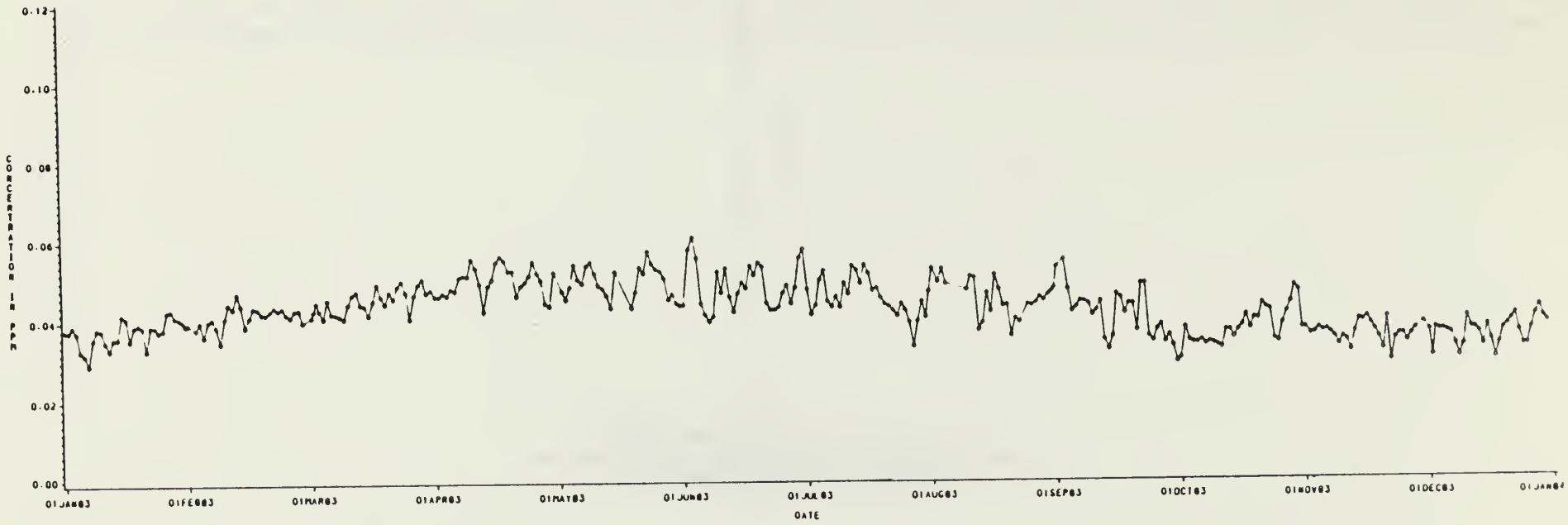
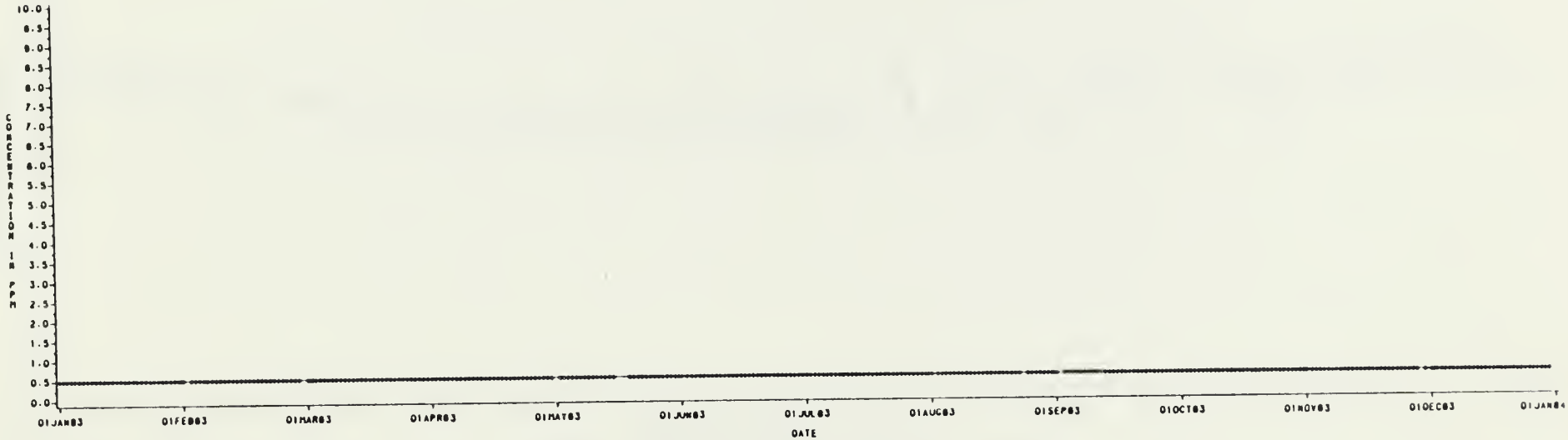


RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
CARBON MONOXIDE DATA (PPM) – SITE 1



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Total Suspended Particulate Data - Sites 1 and 3

TABLE 1
RIO BLANCO OIL SHALE COMPANY
TOTAL SUSPENDED PARTICULATE CONCENTRATIONS

DATE	SITE 1A	SITE 3A
03JUL83	15	20
07JUL83	20	24
11JUL83	18	19
15JUL83	46	54
19JUL83	19	23
23JUL83	11	11
27JUL83	17	13
31JUL83	14	14
04AUG83	21	32
08AUG83	92	56
12AUG83	11	12
16AUG83	14	17
20AUG83	12	33
24AUG83	14	25
28AUG83	22	21
01SEP83	18	16
05SEP83	10	14
09SEP83	21	24
13SEP83	16	31
17SEP83	27	49
21SEP83	13	17
25SEP83	10	•
29SEP83	8	8
03OCT83	5	4
07OCT83	7	10
11OCT83	4	6
15OCT83	•	5
19OCT83	7	6
23OCT83	10	18
27OCT83	12	25
31OCT83	17	•
04NOV83	8	18
08NOV83	2	4
12NOV83	8	6
16NOV83	7	7
20NOV83	4	2
24NOV83	2	4
28NOV83	•	5
02DEC83	4	5
06DEC83	6	5
10DEC83	6	5
14DEC83	0	3
18DEC83	7	5
22DEC83	7	6
26DEC83	0	2
30DEC83	•	2

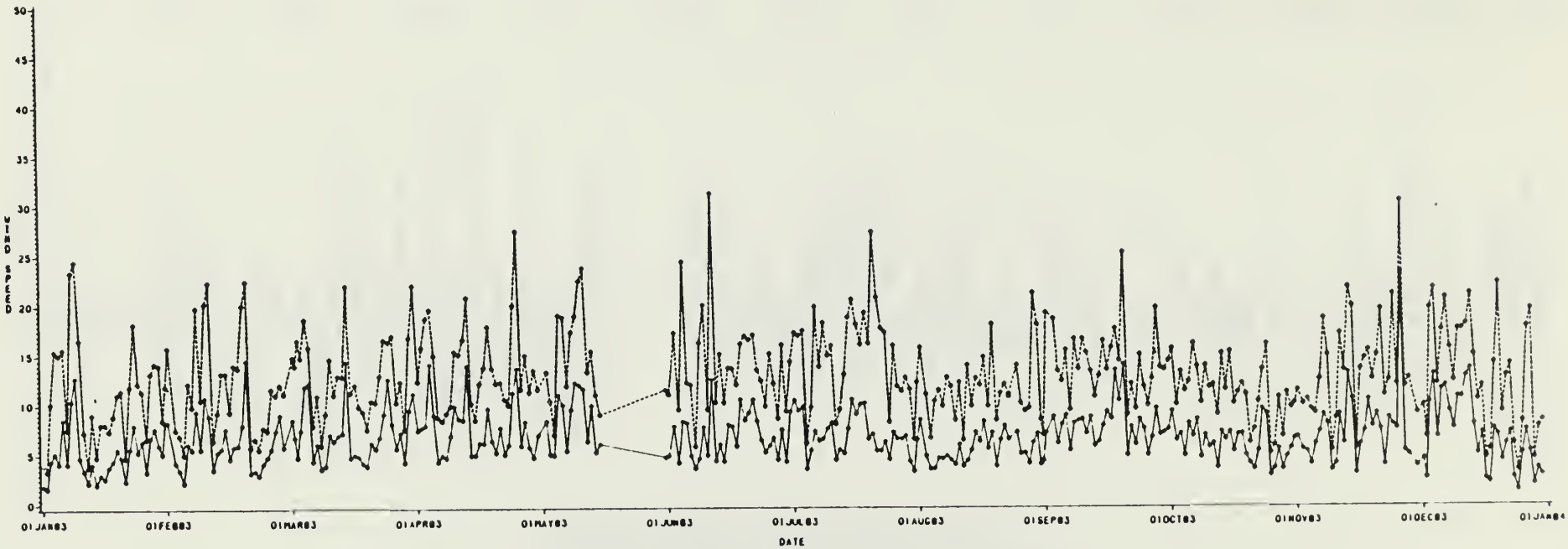
APPENDIX 2-2

Meteorological Data

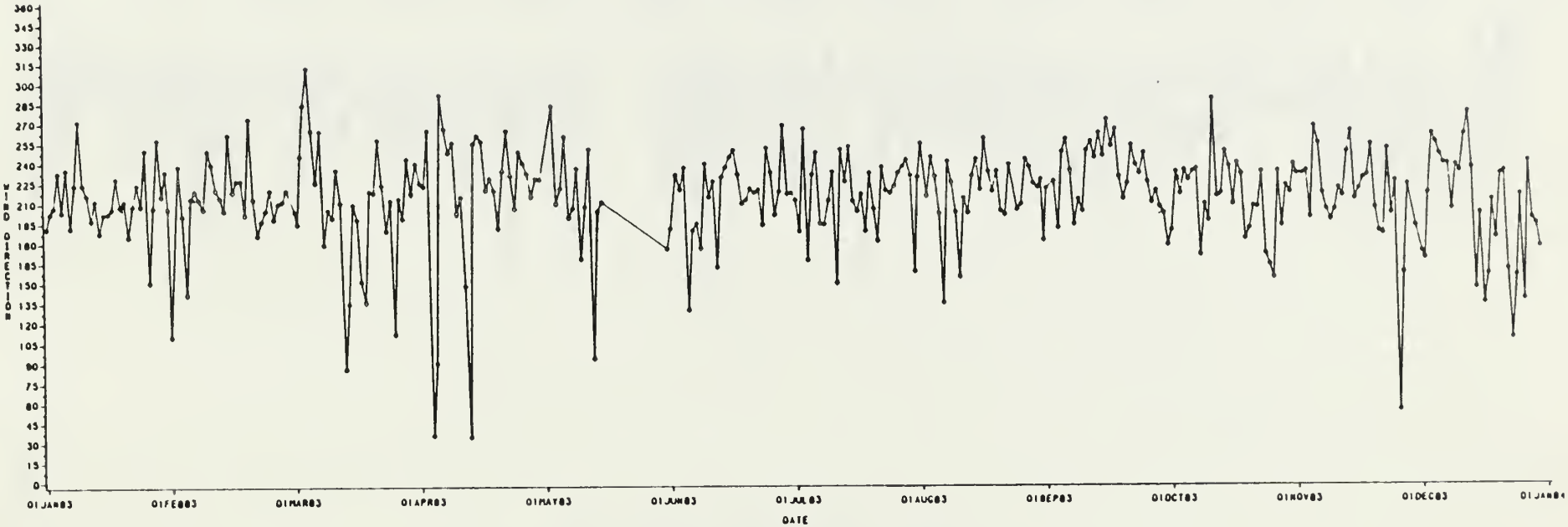
APPENDIX 2-2.1

Plots of Meteorological Data at Site 1

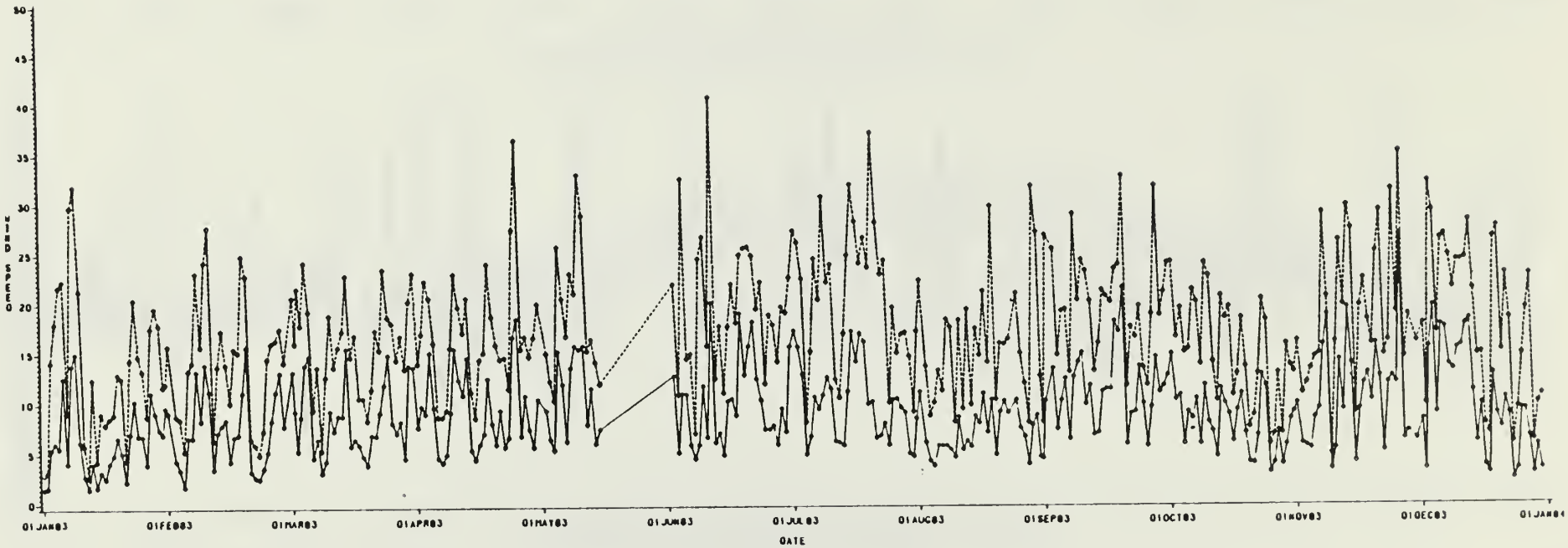
RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
WIND SPEED (10 METER TOWER) - SITE 1



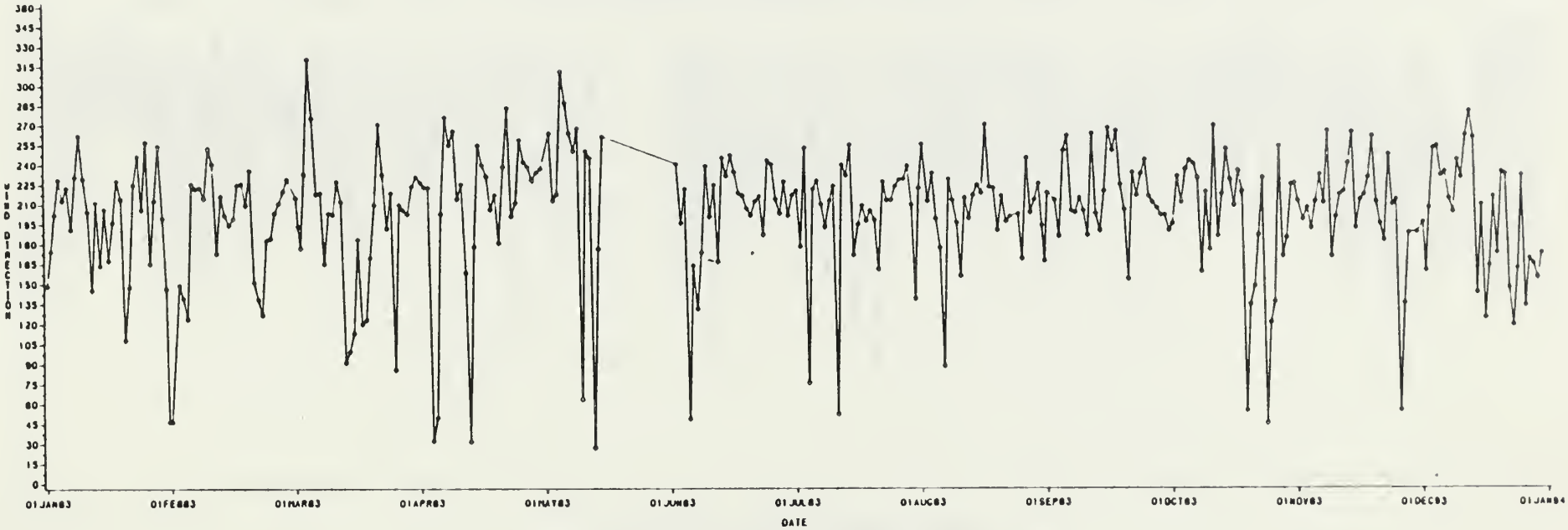
RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
WIND DIRECTION (10 METER TOWER) – SITE 1



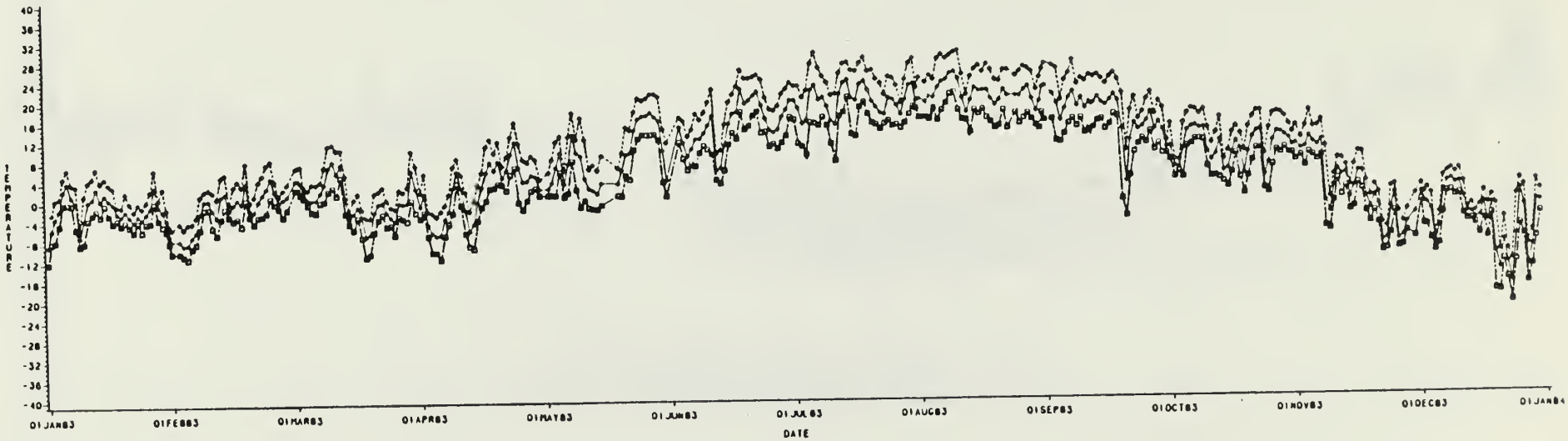
RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
WIND SPEED (60 METER TOWER) – SITE 1



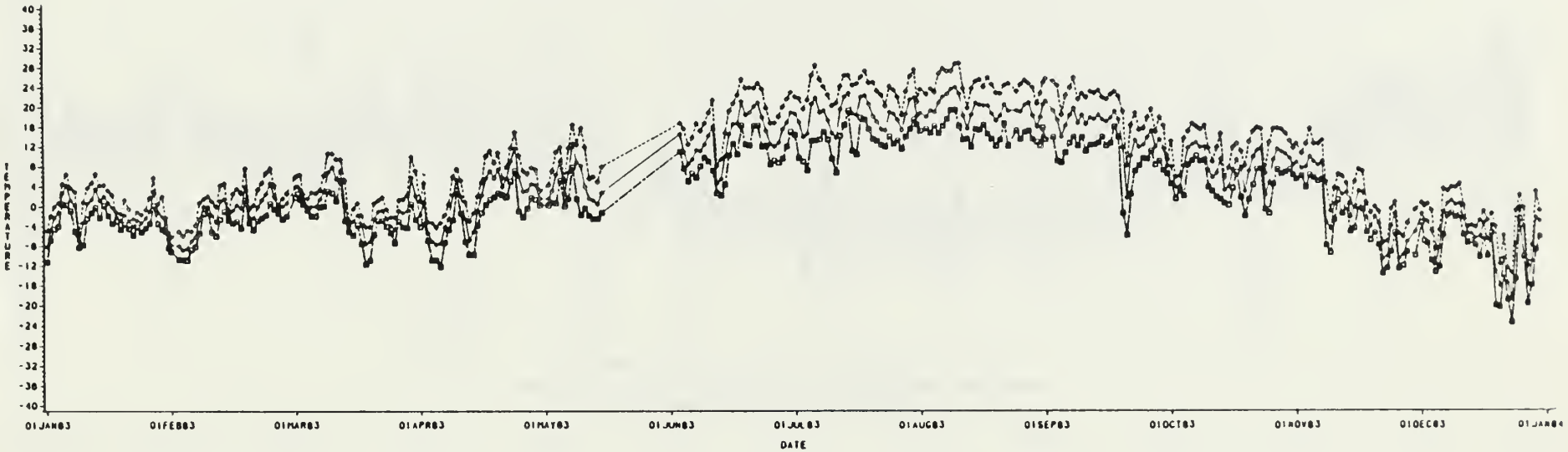
RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
WIND DIRECTION (60 METER TOWER) – SITE 1



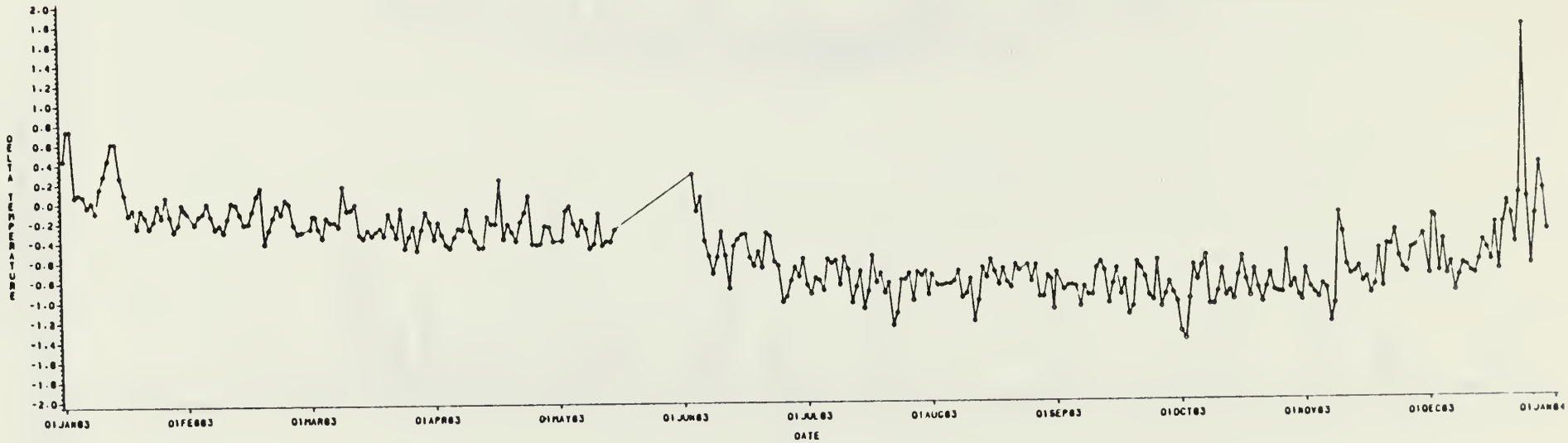
RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
AIR TEMPERATURE (10 METER TOWER) – SITE 1



RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
AIR TEMPERATURE (60 METER TOWER) – SITE 1



RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
DELTA TEMPERATURE (10 AND 60 METERS) - SITE 1



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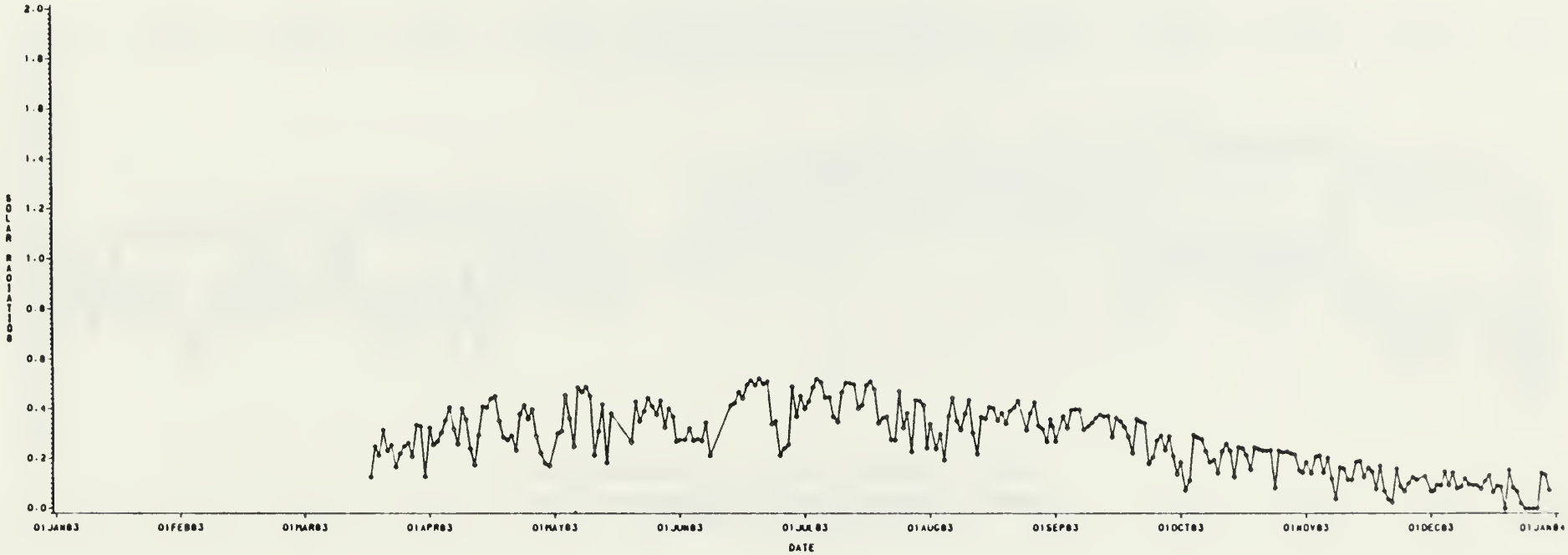
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
SOLAR RADIATION MEASURED AT SITE 1



RIO BLANCO OIL SHALE COMPANY
AIR QUALITY AND METEOROLOGY MONITORING PROGRAM
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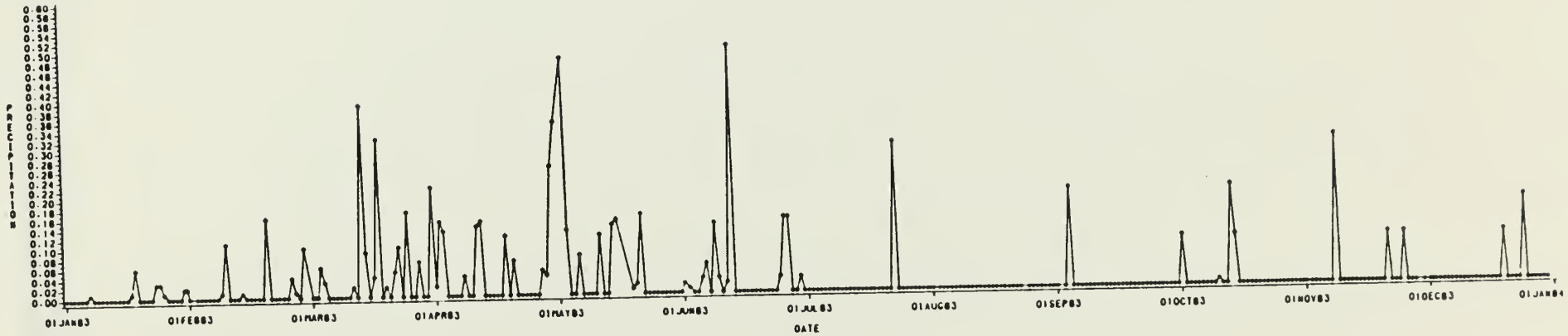

APPENDIX 3-0

Terrestrial Studies

APPENDIX 3-2

Mule Deer Studies

APPENDIX 3-2.1

1983 June Mule Deer Pellet Group Data

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
1	5	07JUN83	7000	20	SE	MP	1	1	0
1	5	07JUN83	7000	20	SE	MP	1	2	0
1	5	07JUN83	7000	20	SE	MP	1	3	1
1	5	07JUN83	7000	20	S	MP	1	4	0
1	5	07JUN83	7000	10	SE	OT	1	5	0
1	5	07JUN83	7000	10	SE	MB	1	6	0
1	5	07JUN83	7000	10	E	MP	1	7	1
1	5	07JUN83	7000	10	NE	MB	1	8	0
1	5	07JUN83	7000	10	N	MB	1	9	0
1	5	07JUN83	7000	20	N	MB	1	10	0
1	5	07JUN83	7000	30	N	MB	2	1	1
1	5	07JUN83	7000	10	NW	SB	2	2	1
1	5	07JUN83	7000	10	SE	SB	2	3	0
1	5	07JUN83	7000	20	E	MB	2	4	0
1	5	07JUN83	7000	50	S	MB	2	5	0
1	5	07JUN83	7000	10	E	SP	2	6	0
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1	11	07JUN83	7000	20	N	MB	2	8	0
1	11	07JUN83	7000	10	0	SB	2	9	0
1	11	07JUN83	7000	10	E	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
1	16	07JUN83	7500	10	E	MB	1	1	1
1	16	07JUN83	7500	50	SE	MB	1	2	0
1	16	07JUN83	7500	50	NE	MB	1	3	0
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1	16	07JUN83	7500	20	E	MB	1	5	0
1	16	07JUN83	7500	10	S	MB	1	6	0
1	16	07JUN83	7500	20	SW	MP	1	7	1
1	16	07JUN83	7500	20	S	MP	1	8	0
1	16	07JUN83	7500	10	SE	MP	1	9	0
1	16	07JUN83	7500	10	S	MP	1	10	0
1	16	07JUN83	7000	30	S	MP	2	1	0
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1	20	07JUN83	7500	20	S	MB	2	9	0
1	20	07JUN83	7500	10	SE	MB	2	10	2

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
1	23	07JUN83	7000	10	W	MB	1	1	0
1	23	07JUN83	7000	10	SE	MB	1	2	0
1	23	07JUN83	7000	10	E	MB	1	3	0
1	23	07JUN83	7000	40	NE	MB	1	4	0
1	23	07JUN83	7000	10	NE	MB	1	5	0
1	23	07JUN83	7000	10	S	SB	1	6	0
1	23	07JUN83	7000	10	SW	OT	1	7	0
1	23	07JUN83	7000	10	SW	SP	1	8	0
1	23	07JUN83	7000	20	S	MP	1	9	0
1	23	07JUN83	7000	10	0	MP	1	10	0
1	23	07JUN83	7000	30	S	MP	2	1	1
1	23	07JUN83	7000	20	NE	MB	2	2	0
1	23	07JUN83	7000	50	S	MB	2	3	0
1	23	07JUN83	7000	10	S	SP	2	4	0
1	23	07JUN83	7000	40	W	SP	2	5	0
1	23	07JUN83	7000	40	SW	MP	2	6	0
1	23	07JUN83	7000	30	SW	MP	2	7	1
1	23	07JUN83	7000	10	S	SP	2	8	0
1	23	07JUN83	7000	10	S	MP	2	9	1
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1	26	07JUN83	7500	30	SE	OT	2	4	0
1	26	07JUN83	7500	10	S	MB	2	5	0
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1	26	07JUN83	7000	50	N	MB	2	7	0
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1	26	07JUN83	7000	10	N	SB	2	9	1
1	26	07JUN83	7000	50	S	MB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
1	31	07JUN83	7500	10	SW	MB	1	1	0
1	31	07JUN83	8000	20	S	MB	1	2	0
1	31	07JUN83	8000	20	S	MB	1	3	0
1	31	07JUN83	8000	10	SE	MB	1	4	0
1	31	07JUN83	8000	20	NE	MB	1	5	0
1	31	07JUN83	8000	30	NW	MB	1	6	0
1	31	07JUN83	8000	30	N	MB	1	7	1
1	31	07JUN83	8000	30	NE	MB	1	8	0
1	31	07JUN83	7500	40	NE	MB	1	9	0
1	31	07JUN83	7500	40	NE	MB	1	10	0
1	31	07JUN83	7500	10	SW	MB	2	1	0
1	31	07JUN83	7500	30	SW	MB	2	2	2
1	31	07JUN83	7500	10	E	SB	2	3	0
1	31	07JUN83	7500	20	SE	MB	2	4	1
1	31	07JUN83	7500	20	SE	MB	2	5	0
1	31	07JUN83	7500	30	SE	MB	2	6	1
1	31	07JUN83	7500	10	0	MB	2	7	0
1	31	07JUN83	7500	10	N	MB	2	8	0
1	31	07JUN83	8000	30	N	MB	2	9	0
1	31	07JUN83	8000	30	N	MB	2	10	0
2	5	18JUN83	6500	10	N	MP	1	1	0
2	5	18JUN83	6500	10	0	SB	1	2	0
2	5	07JUN83	6500	10	0	SB	1	3	0
2	5	07JUN83	6500	10	0	SB	1	4	0
2	5	07JUN83	6500	20	E	SB	1	5	0
2	5	07JUN83	6500	40	SW	MP	1	6	0
2	5	07JUN83	6500	30	S	MP	1	7	0
2	5	07JUN83	6500	10	S	MP	1	8	0
2	5	07JUN83	6500	10	0	MP	1	9	0
2	5	07JUN83	6500	20	NE	MP	1	10	0
2	5	18JUN83	6500	20	N	MP	2	1	0
2	5	18JUN83	6500	20	N	PJ	2	2	0
2	5	18JUN83	6500	20	N	MP	2	3	0
2	5	18JUN83	6500	10	N	MB	2	4	0
2	5	18JUN83	6500	10	0	SB	2	5	0
2	5	07JUN83	6500	10	0	SB	2	6	0
2	5	07JUN83	6500	10	0	SB	2	7	0
2	5	07JUN83	6500	30	SW	MP	2	8	0
2	5	07JUN83	6500	10	SE	MP	2	9	0
2	5	07JUN83	6500	10	SE	PJ	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
2	6	07JUN83	6500	10	N	PJ	1	1	0
2	6	07JUN83	6500	10	NW	PJ	1	2	0
2	6	07JUN83	6500	10	NW	PJ	1	3	0
2	6	07JUN83	6500	20	NW	MP	1	4	0
2	6	07JUN83	6500	20	SE	PJ	1	5	0
2	6	07JUN83	6500	10	NW	PJ	1	6	0
2	6	07JUN83	6500	30	NW	MP	1	7	0
2	6	07JUN83	6500	10	N	SB	1	8	0
2	6	07JUN83	6500	10	C	SB	1	9	0
2	6	07JUN83	6500	10	S	SB	1	10	0
2	6	07JUN83	6500	10	E	SP	2	1	0
2	6	07JUN83	6500	10	SE	PJ	2	2	0
2	6	07JUN83	6500	10	NE	SP	2	3	0
2	6	07JUN83	6500	10	NE	PJ	2	4	0
2	6	07JUN83	6500	10	NE	PJ	2	5	0
2	6	07JUN83	6500	10	N	PJ	2	6	0
2	6	07JUN83	6500	10	NE	MP	2	7	0
2	6	07JUN83	6500	20	E	MP	2	8	0
2	6	07JUN83	6500	20	E	MP	2	9	0
2	6	07JUN83	6500	20	N	SP	2	10	0
2	15	18JUN83	7000	10	W	MP	1	1	0
2	15	18JUN83	7000	10	E	SP	1	2	2
2	15	18JUN83	7000	20	E	MP	1	3	0
2	15	18JUN83	7000	10	E	MP	1	4	0
2	15	18JUN83	7000	10	NW	MP	1	5	0
2	15	18JUN83	7000	10	NW	MP	1	6	0
2	15	18JUN83	7000	10	NW	MP	1	7	0
2	15	18JUN83	7000	10	NW	MP	1	8	1
2	15	18JUN83	7000	10	N	MP	1	9	1
2	15	18JUN83	7000	20	N	MB	1	10	0
2	15	18JUN83	7000	10	NW	SP	2	1	1
2	15	18JUN83	7000	10	NW	SP	2	2	1
2	15	18JUN83	7000	10	N	SP	2	3	0
2	15	18JUN83	7000	10	N	SP	2	4	1
2	15	18JUN83	6500	10	N	MP	2	5	0
2	15	18JUN83	6500	10	N	MP	2	6	0
2	15	18JUN83	6500	20	SW	MP	2	7	0
2	15	18JUN83	6500	10	NW	MP	2	8	0
2	15	18JUN83	6500	20	N	MP	2	9	0
2	15	18JUN83	6500	30	NW	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
2	17	06JUN83	6500	20	S	PJ	1	1	0
2	17	06JUN83	6500	10	NE	PJ	1	2	0
2	17	06JUN83	6500	10	NE	PJ	1	3	2
2	17	06JUN83	6500	10	SE	PJ	1	4	0
2	17	06JUN83	6500	10	SE	PJ	1	5	0
2	17	06JUN83	6500	10	SE	PJ	1	6	0
2	17	06JUN83	6500	10	U	SP	1	7	0
2	17	06JUN83	6500	10	N	SP	1	8	0
2	17	06JUN83	6500	10	N	SP	1	9	0
2	17	06JUN83	6500	10	N	SP	1	10	0
2	17	06JUN83	6500	10	N	SP	2	1	0
2	17	06JUN83	6500	10	0	SP	2	2	0
2	17	06JUN83	6500	10	SE	MP	2	3	0
2	17	06JUN83	6500	10	N	PJ	2	4	0
2	17	06JUN83	6500	10	N	PJ	2	5	0
2	17	06JUN83	6500	10	N	PJ	2	6	0
2	17	06JUN83	6500	10	N	PJ	2	7	0
2	17	06JUN83	6500	10	0	SP	2	8	1
2	17	06JUN83	6500	10	0	SB	2	9	0
2	17	06JUN83	6500	10	SE	MP	2	10	1
2	24	06JUN83	6500	20	N	PJ	1	1	0
2	24	06JUN83	6500	10	SE	PJ	1	2	0
2	24	06JUN83	6500	10	SE	PJ	1	3	0
2	24	06JUN83	6500	10	0	SP	1	4	0
2	24	06JUN83	6500	10	N	PJ	1	5	0
2	24	06JUN83	6500	10	N	SP	1	6	0
2	24	06JUN83	6500	10	NW	SP	1	7	0
2	24	06JUN83	6500	10	NW	SP	1	8	0
2	24	06JUN83	6500	10	NW	SP	1	9	0
2	24	06JUN83	6500	10	0	SB	1	10	1
2	24	06JUN83	6500	10	NE	SP	2	1	0
2	24	06JUN83	6500	10	NE	SP	2	2	0
2	24	06JUN83	6500	10	N	SB	2	3	0
2	24	06JUN83	6500	10	SE	PJ	2	4	0
2	24	06JUN83	6500	10	SE	PJ	2	5	0
2	24	06JUN83	6500	10	E	PJ	2	6	0
2	24	06JUN83	6500	10	E	PJ	2	7	0
2	24	06JUN83	6500	10	N	PJ	2	8	0
2	24	06JUN83	6500	10	N	PJ	2	9	0
2	24	06JUN83	6500	10	N	PJ	2	10	1

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
2	28	06JUN83	7000	10	N	SP	1	1	2
2	28	06JUN83	7000	10	N	SB	1	2	0
2	28	06JUN83	7000	10	N	SB	1	3	0
2	28	06JUN83	7000	10	N	SB	1	4	1
2	28	06JUN83	7000	10	N	SB	1	5	0
2	28	06JUN83	7000	10	N	SB	1	6	0
2	28	06JUN83	7000	10	NE	SB	1	7	0
2	28	06JUN83	7000	10	N	SB	1	8	0
2	28	06JUN83	7000	10	N	SB	1	9	0
2	28	06JUN83	7000	10	N	SB	1	10	0
2	28	06JUN83	7000	10	E	PJ	2	1	0
2	28	06JUN83	7000	10	E	PJ	2	2	0
2	28	06JUN83	7000	10	N	SP	2	3	0
2	28	06JUN83	7000	10	N	SP	2	4	1
2	28	06JUN83	7000	10	N	SP	2	5	0
2	28	06JUN83	7000	10	N	SP	2	6	1
2	28	06JUN83	7000	10	N	SB	2	7	0
2	28	06JUN83	7000	10	N	SB	2	8	0
2	28	06JUN83	7000	10	N	SB	2	9	0
2	28	06JUN83	7000	10	N	SB	2	10	3
2	34	06JUN83	7000	10	NE	PJ	1	1	0
2	34	06JUN83	7000	10	N	PJ	1	2	0
2	34	06JUN83	7000	10	E	SP	1	3	2
2	34	06JUN83	7000	10	E	SP	1	4	0
2	34	06JUN83	7000	10	E	SP	1	5	0
2	34	06JUN83	7000	10	E	MP	1	6	0
2	34	06JUN83	7000	10	E	MP	1	7	0
2	34	06JUN83	7000	10	E	PJ	1	8	0
2	34	06JUN83	7000	10	N	SP	1	9	0
2	34	06JUN83	7000	10	N	SP	1	10	0
2	34	06JUN83	7000	10	0	SP	2	1	0
2	34	06JUN83	7000	10	N	SP	2	2	3
2	34	06JUN83	7000	10	N	SP	2	3	0
2	34	06JUN83	7000	10	N	SP	2	4	0
2	34	06JUN83	7000	10	N	SP	2	5	0
2	34	06JUN83	7000	10	E	SB	2	6	0
2	34	06JUN83	7000	10	S	SB	2	7	0
2	34	06JUN83	7000	10	SE	PJ	2	8	0
2	34	06JUN83	7000	10	SE	PJ	2	9	0
2	34	06JUN83	7000	10	SE	PJ	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
3	1	06JUN83	6500	30	SE	SP	1	1	0
3	1	06JUN83	6500	10	0	SP	1	2	0
3	1	06JUN83	6500	10	0	SP	1	3	0
3	1	06JUN83	6500	10	0	SP	1	4	0
3	1	06JUN83	6500	10	N	SP	1	5	0
3	1	06JUN83	6500	10	0	SP	1	6	0
3	1	06JUN83	6500	10	0	SP	1	7	0
3	1	06JUN83	6500	10	0	SP	1	8	0
3	1	06JUN83	6500	10	0	SB	1	9	0
3	1	06JUN83	6500	10	NW	SP	1	10	0
3	1	06JUN83	6500	10	0	SP	2	1	0
3	1	06JUN83	6500	10	0	SB	2	2	0
3	1	06JUN83	6500	10	N	SP	2	3	0
3	1	06JUN83	6500	10	0	SP	2	4	0
3	1	06JUN83	6500	10	0	SB	2	5	0
3	1	06JUN83	6500	10	S	SB	2	6	0
3	1	06JUN83	6500	10	0	SB	2	7	0
3	1	06JUN83	6500	10	N	SB	2	8	0
3	1	06JUN83	6500	10	0	SB	2	9	1
3	1	06JUN83	6500	10	0	SB	2	10	1
3	11	06JUN83	6500	20	S	SP	1	1	0
3	11	06JUN83	6500	10	S	SP	1	2	0
3	11	06JUN83	6500	10	0	SB	1	3	0
3	11	06JUN83	6500	10	0	SB	1	4	0
3	11	06JUN83	6500	10	0	SB	1	5	1
3	11	06JUN83	6500	10	0	SB	1	6	0
3	11	06JUN83	6500	10	0	SB	1	7	0
3	11	06JUN83	6500	10	0	SB	1	8	0
3	11	06JUN83	6500	10	0	SB	1	9	0
3	11	06JUN83	6500	10	0	SB	1	10	0
3	11	06JUN83	6500	10	S	SP	2	1	0
3	11	06JUN83	6500	10	0	MP	2	2	1
3	11	06JUN83	6500	10	N	SP	2	3	0
3	11	06JUN83	6500	10	N	SP	2	4	1
3	11	06JUN83	6500	10	0	SB	2	5	0
3	11	06JUN83	6500	10	N	SB	2	6	0
3	11	06JUN83	6500	10	S	SB	2	7	0
3	11	06JUN83	6500	10	N	SB	2	8	0
3	11	06JUN83	6500	10	SE	SB	2	9	0
3	11	06JUN83	6500	10	S	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
3	14	06JUN83	6500	10	0	SB	1	1	0
3	14	06JUN83	6500	10	0	SB	1	2	1
3	14	06JUN83	6500	10	0	SB	1	3	0
3	14	06JUN83	6500	10	SE	SP	1	4	0
3	14	06JUN83	6500	10	SE	PJ	1	5	0
3	14	06JUN83	6500	10	SE	PJ	1	6	0
3	14	06JUN83	6500	10	SE	PJ	1	7	1
3	14	06JUN83	6500	10	NE	SP	1	8	0
3	14	06JUN83	6500	10	N	SP	1	9	0
3	14	06JUN83	6500	10	0	SB	1	10	0
3	14	06JUN83	6500	10	N	SP	2	1	0
3	14	06JUN83	6500	10	N	SB	2	2	0
3	14	06JUN83	6500	10	0	SB	2	3	3
3	14	06JUN83	6500	10	0	SB	2	4	0
3	14	06JUN83	6500	10	0	SB	2	5	0
3	14	06JUN83	6500	10	0	SB	2	6	0
3	14	06JUN83	6500	10	W	SB	2	7	0
3	14	06JUN83	6500	10	S	SP	2	8	1
3	14	06JUN83	6500	10	0	SP	2	9	0
3	14	06JUN83	6500	10	0	SB	2	10	0
3	17	06JUN83	6500	10	0	SB	1	1	0
3	17	06JUN83	6500	10	0	SB	1	2	0
3	17	06JUN83	6500	10	0	SB	1	3	0
3	17	06JUN83	6500	10	0	SB	1	4	0
3	17	06JUN83	6500	10	0	SB	1	5	0
3	17	06JUN83	6500	10	0	SB	1	6	0
3	17	06JUN83	6500	10	0	SB	1	7	0
3	17	06JUN83	6500	10	N	SB	1	8	0
3	17	06JUN83	6500	10	S	SP	1	9	0
3	17	06JUN83	6500	20	S	MP	1	10	0
3	17	06JUN83	6500	10	W	SB	2	1	1
3	17	06JUN83	6500	10	NW	SB	2	2	0
3	17	06JUN83	6500	10	NW	SB	2	3	0
3	17	06JUN83	6500	10	N	SB	2	4	0
3	17	06JUN83	6500	10	NW	SB	2	5	0
3	17	06JUN83	6500	10	NW	SB	2	6	0
3	17	06JUN83	6500	10	NW	SB	2	7	0
3	17	06JUN83	6500	10	N	SB	2	8	0
3	17	06JUN83	6500	10	SE	SB	2	9	0
3	17	06JUN83	6500	10	S	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
3	18	06JUN83	6500	10	SW	SB	1	1	0
3	18	06JUN83	6500	10	W	SB	1	2	0
3	18	06JUN83	6500	10	W	SB	1	3	0
3	18	06JUN83	6500	10	SW	SB	1	4	0
3	18	06JUN83	6500	10	0	SB	1	5	1
3	18	06JUN83	6500	10	N	SB	1	6	0
3	18	06JUN83	6500	10	N	SB	1	7	0
3	18	06JUN83	6500	10	NW	SB	1	8	0
3	18	06JUN83	6500	20	W	SB	1	9	0
3	18	06JUN83	6500	10	SW	SB	1	10	0
3	18	06JUN83	6500	10	0	SB	2	1	0
3	18	06JUN83	6500	10	0	SB	2	2	0
3	18	06JUN83	6500	10	0	SB	2	3	0
3	18	06JUN83	6500	10	0	SB	2	4	0
3	18	06JUN83	6500	10	0	SB	2	5	0
3	18	06JUN83	6500	10	NW	SB	2	6	0
3	18	06JUN83	6500	10	NW	SB	2	7	0
3	18	06JUN83	6500	10	SW	SB	2	8	0
3	18	06JUN83	6500	10	SW	SB	2	9	1
3	18	06JUN83	6500	10	SW	SB	2	10	0
3	19	06JUN83	6500	10	N	SP	1	1	0
3	19	06JUN83	6500	10	N	SP	1	2	1
3	19	06JUN83	6500	10	NW	SB	1	3	0
3	19	06JUN83	6500	10	NW	SB	1	4	0
3	19	06JUN83	6500	10	N	SB	1	5	0
3	19	06JUN83	6500	10	N	SB	1	6	1
3	19	06JUN83	6500	10	0	SB	1	7	0
3	19	06JUN83	6500	10	0	SB	1	8	0
3	19	06JUN83	6500	10	SE	PJ	1	9	0
3	19	06JUN83	6500	20	SW	PJ	1	10	0
3	19	06JUN83	6500	10	0	SP	2	1	0
3	19	06JUN83	6500	10	0	SP	2	2	0
3	19	06JUN83	6500	10	N	SP	2	3	0
3	19	06JUN83	6500	10	N	SP	2	4	0
3	19	06JUN83	6500	10	N	SB	2	5	0
3	19	06JUN83	6500	10	SE	SP	2	6	0
3	19	06JUN83	6500	10	E	PJ	2	7	0
3	19	06JUN83	6500	10	SE	PJ	2	8	1
3	19	06JUN83	6500	10	NE	PJ	2	9	0
3	19	06JUN83	6500	10	N	SP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
3	34	06JUN83	6000	10	0	SB	1	1	0
3	34	06JUN83	6000	10	0	SB	1	2	0
3	34	17JUN83	6000	10	0	MB	1	3	0
3	34	17JUN83	6000	50	S	MP	1	4	0
3	34	17JUN83	6500	40	SE	MP	1	5	1
3	34	17JUN83	6500	20	SE	SB	1	6	1
3	34	17JUN83	6500	50	SW	MP	1	7	0
3	34	17JUN83	6500	10	S	PJ	1	8	0
3	34	17JUN83	6500	10	0	PJ	1	9	0
3	34	17JUN83	6500	10	NE	SP	1	10	0
3	34	17JUN83	6500	20	NW	MP	2	1	0
3	34	17JUN83	6500	40	NW	MP	2	2	0
3	34	17JUN83	6500	10	NW	SB	2	3	0
3	34	17JUN83	6000	10	0	SB	2	4	0
3	34	17JUN83	6000	10	0	SB	2	5	0
3	34	17JUN83	6000	10	0	SB	2	6	0
3	34	17JUN83	6000	50	E	MP	2	7	0
3	34	17JUN83	6500	50	E	MP	2	8	0
3	34	17JUN83	6500	40	E	SP	2	9	0
3	34	17JUN83	6500	10	0	SP	2	10	1
4	1	07JUN83	7500	50	S	MB	1	1	0
4	1	07JUN83	7500	50	N	OT	1	2	0
4	1	07JUN83	7500	10	E	SB	1	3	0
4	1	07JUN83	7500	50	S	MB	1	4	0
4	1	07JUN83	7500	30	SE	MB	1	5	1
4	1	07JUN83	7500	40	SE	MB	1	6	0
4	1	07JUN83	7500	40	SE	MB	1	7	2
4	1	07JUN83	7500	30	SE	MB	1	8	0
4	1	07JUN83	7500	30	SE	MB	1	9	1
4	1	07JUN83	8000	30	SE	MB	1	10	0
4	1	07JUN83	7500	50	N	MB	2	1	1
4	1	07JUN83	7500	50	N	MB	2	2	0
4	1	07JUN83	7500	40	N	MB	2	3	1
4	1	07JUN83	7500	10	E	MB	2	4	0
4	1	07JUN83	7500	50	S	MP	2	5	0
4	1	07JUN83	7500	50	SE	MP	2	6	0
4	1	07JUN83	7500	30	SE	MB	2	7	0
4	1	07JUN83	7500	40	E	MB	2	8	0
4	1	07JUN83	7500	40	E	MB	2	9	3
4	1	07JUN83	7500	10	SE	MB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
4	8	16JUN83	7500	20	N	MB	1	1	0
4	8	16JUN83	7500	30	N	MB	1	2	0
4	8	16JUN83	7500	10	SE	MB	1	3	0
4	8	16JUN83	7500	30	SE	MB	1	4	0
4	8	16JUN83	7500	20	S	MB	1	5	0
4	8	16JUN83	7500	10	SE	MB	1	6	0
4	8	16JUN83	7500	10	SE	MB	1	7	0
4	8	16JUN83	7500	10	SE	MB	1	8	0
4	8	16JUN83	8000	20	S	MB	1	9	0
4	8	16JUN83	8000	10	0	MB	1	10	0
4	8	16JUN83	7500	10	N	MB	2	1	1
4	8	16JUN83	7500	20	N	MB	2	2	1
4	8	16JUN83	7500	20	N	MB	2	3	0
4	8	16JUN83	7500	10	S	MB	2	4	0
4	8	16JUN83	7500	30	S	MB	2	5	1
4	8	16JUN83	7500	20	SE	MB	2	6	1
4	8	16JUN83	7500	30	E	MB	2	7	0
4	8	16JUN83	7500	20	E	MB	2	8	1
4	8	16JUN83	7500	20	SE	MB	2	9	0
4	8	16JUN83	7500	30	E	MB	2	10	1
4	13	16JUN83	7500	10	0	MB	1	1	0
4	13	16JUN83	7500	10	SW	OT	1	2	0
4	13	16JUN83	7500	10	SW	OT	1	3	0
4	13	16JUN83	8000	10	S	MB	1	4	0
4	13	16JUN83	8000	20	S	MB	1	5	2
4	13	16JUN83	8000	10	0	MB	1	6	0
4	13	16JUN83	8000	10	W	MB	1	7	0
4	13	16JUN83	8000	10	W	MB	1	8	0
4	13	16JUN83	8000	10	S	MB	1	9	0
4	13	16JUN83	8000	10	N	MB	1	10	0
4	13	16JUN83	7500	10	SE	MB	2	1	0
4	13	16JUN83	7500	10	SW	MB	2	2	0
4	13	16JUN83	7500	20	SW	MB	2	3	0
4	13	16JUN83	7500	20	SW	OT	2	4	0
4	13	16JUN83	7500	10	SW	OT	2	5	0
4	13	16JUN83	7500	20	SW	OT	2	6	0
4	13	16JUN83	7500	10	SW	OT	2	7	0
4	13	16JUN83	7500	10	0	OT	2	8	0
4	13	16JUN83	7500	10	N	OT	2	9	1
4	13	16JUN83	7500	10	N	OT	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
4	14	16JUN83	7500	30	E	MB	1	1	0
4	14	16JUN83	7500	30	E	MB	1	2	0
4	14	16JUN83	7500	30	E	MB	1	3	1
4	14	16JUN83	7500	30	E	MB	1	4	0
4	14	16JUN83	7500	20	SE	MB	1	5	1
4	14	16JUN83	7500	30	E	MB	1	6	1
4	14	16JUN83	7500	10	E	MB	1	7	0
4	14	16JUN83	7500	20	S	MB	1	8	0
4	14	16JUN83	7500	10	S	MB	1	9	0
4	14	16JUN83	7500	10	0	MB	1	10	0
4	14	16JUN83	7500	50	SW	MB	2	1	0
4	14	16JUN83	7500	30	SW	MB	2	2	2
4	14	16JUN83	7500	20	SW	MB	2	3	1
4	14	16JUN83	7500	20	W	MB	2	4	0
4	14	16JUN83	7500	20	SE	MB	2	5	1
4	14	16JUN83	7500	20	SE	MB	2	6	1
4	14	16JUN83	7500	20	SE	MB	2	7	1
4	14	16JUN83	7500	10	N	MB	2	8	0
4	14	16JUN83	7500	10	SW	MB	2	9	0
4	14	16JUN83	7500	10	SW	MB	2	10	1
4	18	14JUN83	7000	20	N	MB	1	1	0
4	18	14JUN83	7000	20	N	MB	1	2	1
4	18	14JUN83	7000	20	N	MB	1	3	1
4	18	14JUN83	7000	20	S	SB	1	4	0
4	18	14JUN83	7000	40	S	PJ	1	5	0
4	18	14JUN83	7000	10	S	MP	1	6	1
4	18	14JUN83	7000	10	S	PJ	1	7	0
4	18	14JUN83	7000	10	S	PJ	1	8	1
4	18	14JUN83	7500	10	S	PJ	1	9	0
4	18	14JUN83	7500	30	S	PJ	1	10	0
4	18	14JUN83	7500	40	N	MB	2	1	0
4	18	14JUN83	7500	20	S	SB	2	2	0
4	18	14JUN83	7500	10	S	SB	2	3	0
4	18	14JUN83	7500	20	S	SB	2	4	1
4	18	14JUN83	7500	20	S	SB	2	5	0
4	18	14JUN83	7500	40	E	SB	2	6	2
4	18	14JUN83	7500	40	E	SB	2	7	0
4	18	14JUN83	7500	40	E	SP	2	8	0
4	18	14JUN83	7500	30	E	SP	2	9	5
4	18	14JUN83	7500	10	E	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
4	23	16JUN83	7000	30	S	MB	1	1	0
4	23	16JUN83	7000	10	0	OT	1	2	0
4	23	16JUN83	7000	30	E	MB	1	3	3
4	23	16JUN83	7000	30	E	MB	1	4	1
4	23	16JUN83	7000	40	E	MB	1	5	1
4	23	16JUN83	7500	30	E	MB	1	6	1
4	23	16JUN83	7500	20	SE	MP	1	7	1
4	23	16JUN83	7500	10	S	MP	1	8	1
4	23	16JUN83	7500	10	0	MB	1	9	0
4	23	16JUN83	7500	10	E	MB	1	10	1
4	23	16JUN83	7000	40	S	MP	2	1	1
4	23	16JUN83	7000	30	S	SP	2	2	0
4	23	16JUN83	7000	30	S	SP	2	3	0
4	23	16JUN83	7500	30	E	MP	2	4	0
4	23	16JUN83	7500	10	S	MP	2	5	0
4	23	16JUN83	7500	10	SE	MP	2	6	0
4	23	16JUN83	7500	10	NW	MP	2	7	0
4	23	16JUN83	7500	20	NW	MB	2	8	0
4	23	16JUN83	7000	30	NW	MB	2	9	0
4	23	16JUN83	7000	20	E	MB	2	10	0
4	25	16JUN83	8000	30	S	SB	1	1	0
4	25	16JUN83	8000	10	SW	OT	1	2	0
4	25	16JUN83	8000	10	S	MB	1	3	0
4	25	16JUN83	8000	10	W	OT	1	4	0
4	25	16JUN83	8000	10	W	OT	1	5	0
4	25	16JUN83	8000	10	S	MB	1	6	0
4	25	16JUN83	8000	10	S	MB	1	7	0
4	25	16JUN83	8000	10	N	MB	1	8	0
4	25	16JUN83	8000	40	N	MB	1	9	0
4	25	16JUN83	7500	40	N	MB	1	10	0
4	25	16JUN83	7500	20	SW	MB	2	1	0
4	25	16JUN83	7500	20	W	MB	2	2	1
4	25	16JUN83	7500	20	S	MB	2	3	1
4	25	16JUN83	7500	20	S	OT	2	4	0
4	25	16JUN83	8000	20	S	MB	2	5	1
4	25	16JUN83	8000	10	SW	OT	2	6	0
4	25	16JUN83	8000	10	W	OT	2	7	0
4	25	16JUN83	7500	10	N	MB	2	8	1
4	25	16JUN83	7500	10	N	MB	2	9	0
4	25	16JUN83	7500	20	N	MB	2	10	1

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
5	8	14JUN83	7000	10	SE	MP	1	1	2
5	8	14JUN83	7000	10	N	MB	1	2	0
5	8	14JUN83	7000	10	N	SB	1	3	0
5	8	14JUN83	7000	10	N	MB	1	4	4
5	8	14JUN83	7000	10	N	MB	1	5	0
5	8	14JUN83	7000	10	N	MB	1	6	0
5	8	14JUN83	7000	10	N	MB	1	7	2
5	8	14JUN83	7000	20	N	MB	1	8	0
5	8	14JUN83	7000	20	S	MB	1	9	0
5	8	14JUN83	7000	10	S	MB	1	10	0
5	8	14JUN83	7000	10	E	MP	2	1	0
5	8	14JUN83	7000	10	E	SB	2	2	0
5	8	14JUN83	7000	10	NE	MB	2	3	2
5	8	14JUN83	7000	10	E	MB	2	4	0
5	8	14JUN83	7000	10	S	MB	2	5	1
5	8	14JUN83	7000	10	S	MB	2	6	0
5	8	14JUN83	7000	10	0	MB	2	7	0
5	8	14JUN83	7000	10	N	SB	2	8	1
5	8	14JUN83	7000	10	N	MB	2	9	0
5	8	14JUN83	7000	10	N	SB	2	10	0
5	13	14JUN83	7000	50	S	MB	1	1	0
5	13	14JUN83	7000	10	S	SB	1	2	0
5	13	14JUN83	7000	40	S	SP	1	3	1
5	13	14JUN83	7000	40	S	OT	1	4	1
5	13	14JUN83	7000	20	S	SP	1	5	2
5	13	14JUN83	7000	40	S	SB	1	6	2
5	13	14JUN83	7000	10	0	MP	1	7	0
5	13	14JUN83	7000	10	N	MP	1	8	0
5	13	14JUN83	7000	20	W	MP	1	9	2
5	13	14JUN83	7000	20	W	MP	1	10	0
5	13	14JUN83	6500	10	N	MB	2	1	2
5	13	14JUN83	6500	10	0	SB	2	2	1
5	13	14JUN83	7000	40	S	SB	2	3	0
5	13	14JUN83	7000	20	S	MP	2	4	0
5	13	14JUN83	7000	10	SE	MP	2	5	0
5	13	14JUN83	7000	20	E	SB	2	6	3
5	13	14JUN83	7000	30	E	SB	2	7	1
5	13	14JUN83	7000	10	SE	MP	2	8	0
5	13	14JUN83	7000	10	SE	MP	2	9	0
5	13	14JUN83	7000	10	0	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
5	15	14JUN83	7000	10	N	MP	1	1	0
5	15	14JUN83	7000	10	NW	MB	1	2	1
5	15	14JUN83	7000	10	NW	MP	1	3	0
5	15	14JUN83	7000	10	N	MP	1	4	3
5	15	14JUN83	6500	10	N	MP	1	5	3
5	15	14JUN83	6500	10	N	MP	1	6	3
5	15	14JUN83	6500	30	NW	MP	1	7	0
5	15	14JUN83	6500	10	0	SB	1	8	0
5	15	14JUN83	6500	10	0	SB	1	9	1
5	15	14JUN83	7000	40	S	SP	1	10	0
5	15	14JUN83	7000	10	E	PJ	2	1	0
5	15	14JUN83	7000	10	0	PJ	2	2	0
5	15	14JUN83	7000	10	N	SP	2	3	0
5	15	14JUN83	7000	10	W	PJ	2	4	0
5	15	14JUN83	7000	30	N	SP	2	5	0
5	15	14JUN83	7000	10	N	SB	2	6	2
5	15	14JUN83	6500	10	N	SB	2	7	0
5	15	14JUN83	6500	10	N	SP	2	8	3
5	15	14JUN83	6500	10	N	MP	2	9	0
5	15	14JUN83	6500	20	N	MP	2	10	0
5	27	14JUN83	7000	10	0	SP	1	1	3
5	27	14JUN83	7000	20	W	SB	1	2	2
5	27	14JUN83	7000	20	W	SP	1	3	4
5	27	14JUN83	7000	10	N	SP	1	4	0
5	27	14JUN83	7000	20	N	MB	1	5	0
5	27	14JUN83	7000	20	N	MB	1	6	1
5	27	14JUN83	7000	10	N	MB	1	7	4
5	27	14JUN83	7000	20	N	MB	1	8	2
5	27	14JUN83	6500	40	N	MB	1	9	0
5	27	14JUN83	6500	30	N	MB	1	10	0
5	27	14JUN83	7000	10	0	SP	2	1	0
5	27	14JUN83	7000	10	0	SP	2	2	0
5	27	14JUN83	7000	10	0	SP	2	3	0
5	27	14JUN83	7000	10	0	SP	2	4	0
5	27	14JUN83	7000	10	0	SP	2	5	0
5	27	14JUN83	7000	10	N	SP	2	6	1
5	27	14JUN83	7000	10	N	SP	2	7	0
5	27	14JUN83	7000	10	N	SP	2	8	0
5	27	14JUN83	7000	20	N	SB	2	9	3
5	27	14JUN83	6500	30	N	MB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
5	28	14JUN83	7000	10	O	SB	1	1	0
5	28	14JUN83	7000	10	S	SB	1	2	1
5	28	14JUN83	7000	30	E	MP	1	3	0
5	28	14JUN83	7000	30	S	PJ	1	4	0
5	28	14JUN83	7000	10	N	MP	1	5	0
5	28	14JUN83	7000	20	E	SP	1	6	0
5	28	14JUN83	7000	20	S	PJ	1	7	0
5	28	14JUN83	7000	10	S	SP	1	8	0
5	28	14JUN83	7000	10	S	SP	1	9	0
5	28	14JUN83	7000	10	O	PJ	1	10	0
5	28	14JUN83	7000	10	N	SB	2	1	0
5	28	14JUN83	6500	10	N	SB	2	2	0
5	28	14JUN83	6500	10	O	SB	2	3	0
5	28	14JUN83	6500	20	NE	MB	2	4	0
5	28	14JUN83	6500	20	SW	PJ	2	5	0
5	28	14JUN83	6500	10	N	SP	2	6	0
5	28	14JUN83	6500	10	N	SP	2	7	1
5	28	14JUN83	6500	10	N	MB	2	8	1
5	28	14JUN83	6500	10	O	MB	2	9	0
5	28	14JUN83	6500	10	N	SB	2	10	1
5	29	08JUN83	7000	10	W	SP	1	1	1
5	29	08JUN83	7000	20	NW	OT	1	2	2
5	29	08JUN83	7000	10	N	SB	1	3	2
5	29	08JUN83	7000	10	O	SB	1	4	0
5	29	08JUN83	7000	10	O	SP	1	5	0
5	29	08JUN83	7000	10	N	SB	1	6	0
5	29	08JUN83	7000	20	N	MB	1	7	1
5	29	08JUN83	7000	30	SW	PJ	1	8	0
5	29	08JUN83	7000	20	W	SP	1	9	0
5	29	08JUN83	7000	20	W	SB	1	10	0
5	29	08JUN83	7000	10	O	SB	2	1	0
5	29	08JUN83	7000	10	N	SP	2	2	0
5	29	08JUN83	7000	10	W	SP	2	3	0
5	29	08JUN83	7000	10	N	SB	2	4	0
5	29	08JUN83	7000	10	N	SB	2	5	0
5	29	08JUN83	7000	10	NE	SB	2	6	3
5	29	08JUN83	7000	20	E	SB	2	7	0
5	29	08JUN83	7000	10	NE	SP	2	8	0
5	29	08JUN83	7000	10	NE	SB	2	9	0
5	29	08JUN83	7000	10	NE	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
5	36	08JUN83	6500	10	0	SP	1	1	0
5	36	08JUN83	6500	10	NE	MP	1	2	0
5	36	08JUN83	6500	20	S	SP	1	3	2
5	36	08JUN83	6500	10	SE	SP	1	4	1
5	36	08JUN83	6500	10	SE	MP	1	5	0
5	36	08JUN83	6500	10	E	SP	1	6	2
5	36	08JUN83	7000	30	N	MP	1	7	0
5	36	08JUN83	7000	30	S	MP	1	8	0
5	36	08JUN83	7000	30	S	MP	1	9	0
5	36	08JUN83	7000	10	S	MP	1	10	0
5	36	08JUN83	6500	10	S	MP	2	1	0
5	36	08JUN83	6500	10	S	SP	2	2	0
5	36	08JUN83	6500	10	NE	SP	2	3	0
5	36	08JUN83	6500	10	E	SP	2	4	0
5	36	08JUN83	6500	10	E	PJ	2	5	0
5	36	08JUN83	6500	10	E	SP	2	6	0
5	36	08JUN83	6500	10	SE	SP	2	7	0
5	36	08JUN83	6500	10	0	MP	2	8	1
5	36	08JUN83	6500	10	SE	SP	2	9	1
5	36	08JUN83	7000	10	SE	SP	2	10	1
6	8	15JUN83	6500	10	NW	MP	1	1	0
6	8	15JUN83	6500	10	W	SP	1	2	1
6	8	15JUN83	6500	30	SE	MP	1	3	2
6	8	15JUN83	6500	10	NW	MP	1	4	4
6	8	15JUN83	6500	10	NW	MP	1	5	1
6	8	15JUN83	6500	10	NW	MP	1	6	4
6	8	15JUN83	6500	10	NW	PJ	1	7	0
6	8	15JUN83	6500	20	N	MP	1	8	5
6	8	15JUN83	6500	10	0	SB	1	9	1
6	8	15JUN83	6500	10	0	SB	1	10	0
6	8	15JUN83	6500	30	E	MP	2	1	1
6	8	15JUN83	6500	30	E	MP	2	2	0
6	8	15JUN83	6500	30	E	MP	2	3	1
6	8	15JUN83	6500	30	E	MP	2	4	0
6	8	15JUN83	6500	30	E	SP	2	5	0
6	8	15JUN83	6500	10	N	SP	2	6	1
6	8	15JUN83	6500	10	0	SB	2	7	2
6	8	15JUN83	6500	10	0	SB	2	8	2
6	8	15JUN83	6500	10	0	SB	2	9	0
6	8	15JUN83	6500	10	0	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
6	11	17JUN83	6500	20	N	MP	1	1	0
6	11	17JUN83	6500	10	0	MP	1	2	1
6	11	17JUN83	6500	20	SE	PJ	1	3	0
6	11	17JUN83	6500	20	S	MP	1	4	2
6	11	17JUN83	6500	20	SW	MP	1	5	0
6	11	17JUN83	6500	10	0	PJ	1	6	0
6	11	17JUN83	6500	10	0	SP	1	7	0
6	11	17JUN83	6500	10	0	SP	1	8	1
6	11	17JUN83	6500	10	0	MP	1	9	2
6	11	17JUN83	6500	20	N	MP	1	10	2
6	11	17JUN83	6500	10	SE	SP	2	1	0
6	11	17JUN83	6500	10	0	SP	2	2	0
6	11	17JUN83	6500	20	N	SP	2	3	0
6	11	17JUN83	6500	10	SE	MP	2	4	0
6	11	17JUN83	6500	10	N	PJ	2	5	0
6	11	17JUN83	6500	20	E	MP	2	6	1
6	11	17JUN83	6500	10	SW	PJ	2	7	0
6	11	17JUN83	6500	10	0	SP	2	8	0
6	11	17JUN83	6500	10	SE	PJ	2	9	0
6	11	17JUN83	6500	10	0	SP	2	10	0
6	14	14JUN83	6500	10	E	MP	1	1	3
6	14	14JUN83	6500	10	SE	PJ	1	2	0
6	14	14JUN83	6500	10	0	PJ	1	3	0
6	14	14JUN83	6500	10	0	SP	1	4	0
6	14	14JUN83	6500	10	NW	MP	1	5	0
6	14	14JUN83	6500	20	NW	MP	1	6	0
6	14	14JUN83	6500	10	NW	MP	1	7	0
6	14	14JUN83	6500	30	SE	MP	1	8	0
6	14	14JUN83	6500	20	SE	MP	1	9	0
6	14	14JUN83	6500	10	NW	MP	1	10	0
6	14	14JUN83	6500	10	N	SP	2	1	2
6	14	14JUN83	6500	10	N	SP	2	2	1
6	14	14JUN83	6500	10	N	SP	2	3	0
6	14	14JUN83	6500	10	N	SP	2	4	0
6	14	14JUN83	6500	30	SE	SP	2	5	0
6	14	14JUN83	6500	10	0	SP	2	6	0
6	14	14JUN83	6500	10	N	MP	2	7	0
6	14	14JUN83	6500	10	N	MP	2	8	1
6	14	14JUN83	6500	20	N	MP	2	9	0
6	14	14JUN83	6500	10	N	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT.YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
6	27	07JUN83	6500	30	S	MP	1	1	0
6	27	07JUN83	6500	20	E	SP	1	2	0
6	27	07JUN83	6500	30	N	SP	1	3	1
6	27	07JUN83	6500	50	S	MP	1	4	0
6	27	07JUN83	6500	10	E	SP	1	5	0
6	27	07JUN83	6500	10	SE	PJ	1	6	0
6	27	07JUN83	6500	10	E	PJ	1	7	0
6	27	07JUN83	6500	10	E	MP	1	8	0
6	27	07JUN83	6500	30	S	MP	1	9	0
6	27	07JUN83	6500	10	NE	SB	1	10	0
6	27	07JUN83	6500	20	SE	MB	2	1	0
6	27	07JUN83	6500	10	SE	MB	2	2	0
6	27	07JUN83	6500	10	SE	SB	2	3	0
6	27	07JUN83	6500	50	S	OT	2	4	0
6	27	07JUN83	6500	10	E	SP	2	5	0
6	27	07JUN83	6500	20	N	SP	2	6	0
6	27	07JUN83	6500	10	SE	SB	2	7	0
6	27	07JUN83	6500	30	SW	MP	2	8	0
6	27	07JUN83	6500	10	E	SP	2	9	0
6	27	07JUN83	6500	10	N	SP	2	10	0
6	30	17JUN83	6500	10	0	MP	1	1	0
6	30	17JUN83	6500	10	SW	MP	1	2	0
6	30	17JUN83	6500	10	S	MP	1	3	0
6	30	17JUN83	6500	10	N	MP	1	4	0
6	30	17JUN83	6500	10	N	MP	1	5	0
6	30	17JUN83	6500	10	N	PJ	1	6	1
6	30	17JUN83	6500	10	N	SP	1	7	0
6	30	17JUN83	6500	20	NE	SB	1	8	2
6	30	17JUN83	6500	10	0	SP	1	9	0
6	30	17JUN83	6500	10	0	SP	1	10	0
6	30	17JUN83	6500	10	E	PJ	2	1	0
6	30	17JUN83	6500	10	E	PJ	2	2	0
6	30	17JUN83	6500	10	E	PJ	2	3	1
6	30	17JUN83	6500	10	E	MP	2	4	0
6	30	17JUN83	6500	10	E	MP	2	5	1
6	30	17JUN83	6500	10	E	MP	2	6	1
6	30	17JUN83	6500	10	SE	MP	2	7	0
6	30	17JUN83	6500	10	0	PJ	2	8	0
6	30	17JUN83	6500	10	0	MP	2	9	0
6	30	17JUN83	6500	10	N	PJ	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
6	32	07JUN83	6500	30	SE	PP	1	1	0
6	32	07JUN83	6500	30	N	PP	1	2	0
6	32	07JUN83	6500	50	S	PP	1	3	0
6	32	07JUN83	6500	10	E	PJ	1	4	0
6	32	07JUN83	6500	10	E	PP	1	5	0
6	32	07JUN83	6500	10	NE	PP	1	6	0
6	32	07JUN83	6500	10	SE	PJ	1	7	0
6	32	07JUN83	6500	20	NE	PP	1	8	0
6	32	07JUN83	6500	20	E	PJ	1	9	0
6	32	07JUN83	6500	10	E	PP	1	10	0
6	32	07JUN83	6500	10	O	SB	2	1	0
6	32	07JUN83	6500	10	SE	CT	2	2	0
6	32	07JUN83	6500	20	SE	SP	2	3	0
6	32	07JUN83	6500	30	N	MP	2	4	0
6	32	07JUN83	6500	30	SW	SP	2	5	0
6	32	07JUN83	6500	30	W	MP	2	6	0
6	32	07JUN83	6500	30	W	MP	2	7	0
6	32	07JUN83	6500	30	W	PJ	2	8	0
6	32	07JUN83	6500	20	W	PJ	2	9	0
6	32	07JUN83	6500	20	SW	PJ	2	10	0
6	35	17JUN83	6500	10	W	SB	1	1	0
6	35	17JUN83	6500	10	E	SP	1	2	0
6	35	17JUN83	6500	10	E	SP	1	3	0
6	35	17JUN83	6500	20	E	MP	1	4	0
6	35	17JUN83	6500	20	E	MP	1	5	0
6	35	17JUN83	6500	10	E	MP	1	6	0
6	35	17JUN83	6500	10	O	PJ	1	7	0
6	35	17JUN83	6500	10	NW	MP	1	8	1
6	35	17JUN83	6500	10	NW	MP	1	9	1
6	35	17JUN83	6500	10	O	PJ	1	10	0
6	35	17JUN83	6500	10	O	MP	2	1	1
6	35	17JUN83	6500	10	W	PJ	2	2	0
6	35	17JUN83	6500	10	NW	MP	2	3	0
6	35	17JUN83	6500	10	NW	MP	2	4	0
6	35	17JUN83	6500	10	NW	MP	2	5	0
6	35	17JUN83	6500	10	NW	MP	2	6	0
6	35	17JUN83	6500	10	NW	MP	2	7	0
6	35	17JUN83	6500	20	N	MP	2	8	0
6	35	17JUN83	6500	20	N	SP	2	9	2
6	35	17JUN83	6500	10	O	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
7	16	15JUN83	7500	20	NW	MB	1	1	0
7	16	15JUN83	7500	10	NW	MB	1	2	0
7	16	15JUN83	7500	30	SE	MB	1	3	0
7	16	15JUN83	7500	30	SE	MB	1	4	0
7	16	15JUN83	7500	30	SE	MB	1	5	0
7	16	15JUN83	7500	10	0	MB	1	6	0
7	16	15JUN83	7500	10	NW	MB	1	7	1
7	16	15JUN83	7500	20	NW	MB	1	8	0
7	16	15JUN83	7500	20	NW	MB	1	9	0
7	16	15JUN83	7500	20	NW	MB	1	10	1
7	16	15JUN83	7500	0	0	SB	2	1	0
7	16	15JUN83	7500	10	0	MB	2	2	2
7	16	15JUN83	7500	10	NW	MB	2	3	0
7	16	15JUN83	7500	20	NW	MB	2	4	0
7	16	15JUN83	7500	20	NW	MB	2	5	1
7	16	15JUN83	7000	20	NW	MB	2	6	0
7	16	15JUN83	7000	10	NW	MB	2	7	0
7	16	15JUN83	7000	10	S	SB	2	8	0
7	16	15JUN83	7000	40	E	MB	2	9	0
7	16	15JUN83	7000	30	SE	MB	2	10	1
7	17	08JUN83	7500	10	NW	MB	1	1	0
7	17	08JUN83	7500	10	N	MB	1	2	0
7	17	08JUN83	7500	20	N	MB	1	3	0
7	17	08JUN83	7000	40	S	MP	1	4	0
7	17	08JUN83	7000	10	W	MB	1	5	0
7	17	08JUN83	7000	30	NW	MB	1	6	1
7	17	08JUN83	7000	40	NW	MB	1	7	1
7	17	08JUN83	7000	40	N	MB	1	8	1
7	17	08JUN83	7000	50	W	MB	1	9	0
7	17	08JUN83	7000	40	W	MB	1	10	1
7	17	08JUN83	7500	10	0	MB	2	1	1
7	17	08JUN83	7500	10	0	MB	2	2	0
7	17	08JUN83	7500	10	0	MB	2	3	0
7	17	08JUN83	7500	10	0	MB	2	4	0
7	17	08JUN83	7500	10	0	MB	2	5	1
7	17	08JUN83	7500	10	0	MB	2	6	0
7	17	08JUN83	7500	10	NW	MB	2	7	0
7	17	08JUN83	7500	10	0	MB	2	8	1
7	17	08JUN83	7500	10	0	MB	2	9	0
7	17	08JUN83	7500	10	NW	MB	2	10	2

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
7	19	15JUN83	8000	30	E	MB	1	1	0
7	19	15JUN83	8000	30	E	MB	1	2	0
7	19	15JUN83	8000	40	NE	OT	1	3	0
7	19	15JUN83	7500	40	NE	OT	1	4	0
7	19	15JUN83	7500	10	NE	OT	1	5	0
7	19	15JUN83	7500	30	SW	MB	1	6	0
7	19	15JUN83	7500	30	SW	MB	1	7	0
7	19	15JUN83	7500	20	SW	MB	1	8	0
7	19	15JUN83	7500	30	SW	MB	1	9	0
7	19	15JUN83	7500	30	SW	MB	1	10	0
7	19	15JUN83	7500	50	NW	OT	2	1	0
7	19	15JUN83	7500	50	NW	OT	2	2	0
7	19	15JUN83	7500	40	SE	OT	2	3	0
7	19	15JUN83	7500	50	N	OT	2	4	0
7	19	15JUN83	7500	50	N	OT	2	5	0
7	19	15JUN83	7500	30	S	MB	2	6	0
7	19	15JUN83	7500	30	SE	MB	2	7	0
7	19	15JUN83	7500	30	SE	MB	2	8	0
7	19	15JUN83	7500	30	SE	MP	2	9	0
7	19	15JUN83	7500	30	SE	MP	2	10	0
7	22	15JUN83	7500	10	0	MB	1	1	0
7	22	15JUN83	7500	10	W	MB	1	2	0
7	22	15JUN83	7500	10	NW	MB	1	3	0
7	22	15JUN83	7500	10	N	MB	1	4	0
7	22	15JUN83	7500	20	NW	MB	1	5	0
7	22	15JUN83	7500	30	NW	MB	1	6	0
7	22	15JUN83	7500	20	N	MB	1	7	0
7	22	15JUN83	7500	10	NW	MB	1	8	0
7	22	15JUN83	7500	20	SE	MB	1	9	0
7	22	15JUN83	7500	20	S	MB	1	10	0
7	22	15JUN83	7500	30	E	MB	2	1	0
7	22	15JUN83	7500	20	SE	MB	2	2	0
7	22	15JUN83	7500	10	SE	MB	2	3	0
7	22	15JUN83	7500	10	N	MB	2	4	0
7	22	15JUN83	7500	10	NE	MB	2	5	0
7	22	15JUN83	7500	10	NE	MB	2	6	0
7	22	15JUN83	7500	10	NE	MB	2	7	0
7	22	15JUN83	7500	10	NE	MB	2	8	0
7	22	15JUN83	7500	10	NE	MB	2	9	0
7	22	15JUN83	7500	10	0	MB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
7	28	15JUN83	8000	30	SE	MB	1	1	1
7	28	15JUN83	8000	20	SE	MB	1	2	1
7	28	15JUN83	7500	10	SE	MB	1	3	0
7	28	15JUN83	7500	10	N	MB	1	4	1
7	28	15JUN83	7500	20	NW	MB	1	5	0
7	28	15JUN83	7500	40	NW	MB	1	6	0
7	28	15JUN83	7500	40	NW	MB	1	7	0
7	28	15JUN83	7500	40	NW	MB	1	8	0
7	28	15JUN83	7500	40	NW	MB	1	9	0
7	28	15JUN83	7500	10	SE	SB	1	10	1
7	28	15JUN83	7500	50	N	MB	2	1	0
7	28	15JUN83	7500	50	N	MB	2	2	0
7	28	15JUN83	7500	50	N	MB	2	3	0
7	28	15JUN83	7500	50	E	MB	2	4	1
7	28	15JUN83	7500	40	N	MB	2	5	0
7	28	15JUN83	7500	40	N	MB	2	6	0
7	28	15JUN83	7500	10	SE	MB	2	7	0
7	28	15JUN83	7500	30	SE	MB	2	8	2
7	28	15JUN83	7500	30	SE	MB	2	9	1
7	28	15JUN83	7500	30	SE	MB	2	10	1
7	32	16JUN83	8000	20	NW	MB	1	1	0
7	32	16JUN83	8000	30	NW	MB	1	2	0
7	32	16JUN83	8000	30	NW	OT	1	3	0
7	32	16JUN83	8000	30	NW	OT	1	4	0
7	32	16JUN83	8000	50	SE	MB	1	5	0
7	32	16JUN83	8000	50	SE	MB	1	6	0
7	32	16JUN83	8000	50	SE	MB	1	7	0
7	32	16JUN83	8000	50	SE	MB	1	8	0
7	32	16JUN83	8000	10	0	MB	1	9	0
7	32	16JUN83	8000	10	NW	MB	1	10	0
7	32	16JUN83	8000	20	NW	MB	2	1	0
7	32	16JUN83	8000	30	NW	OT	2	2	0
7	32	16JUN83	8000	30	NW	OT	2	3	0
7	32	16JUN83	8000	40	S	OT	2	4	0
7	32	16JUN83	8000	40	E	MB	2	5	0
7	32	16JUN83	8000	40	N	OT	2	6	0
7	32	16JUN83	8000	40	NE	OT	2	7	0
7	32	16JUN83	8000	40	NE	OT	2	8	0
7	32	16JUN83	8000	40	S	MB	2	9	0
7	32	16JUN83	8000	30	S	MB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
7	34	15JUN83	7500	50	N	MB	1	1	0
7	34	15JUN83	7500	50	N	MB	1	2	0
7	34	15JUN83	7500	50	N	MB	1	3	0
7	34	15JUN83	7500	40	SE	MB	1	4	0
7	34	15JUN83	7500	30	NE	MB	1	5	0
7	34	15JUN83	7500	30	SW	MB	1	6	0
7	34	15JUN83	7500	30	W	MB	1	7	0
7	34	15JUN83	7500	30	W	MB	1	8	0
7	34	15JUN83	7500	30	S	MB	1	9	0
7	34	15JUN83	7500	30	NW	MB	1	10	0
7	34	15JUN83	7500	50	N	MB	2	1	0
7	34	15JUN83	7500	50	N	MB	2	2	0
7	34	15JUN83	7500	50	SE	MB	2	3	0
7	34	15JUN83	7500	50	SE	MB	2	4	0
7	34	15JUN83	7500	50	SE	MB	2	5	1
7	34	15JUN83	7500	50	E	MB	2	6	0
7	34	15JUN83	7500	50	E	MB	2	7	1
7	34	15JUN83	7500	50	E	MB	2	8	1
7	34	15JUN83	7500	10	E	MB	2	9	0
7	34	15JUN83	7500	10	NE	MB	2	10	0
8	3	08JUN83	7000	10	N	MB	1	1	1
8	3	08JUN83	7000	10	N	SB	1	2	1
8	3	08JUN83	7000	10	N	SB	1	3	0
8	3	08JUN83	7000	10	S	SB	1	4	0
8	3	08JUN83	7000	10	S	SB	1	5	0
8	3	08JUN83	7000	30	NE	MP	1	6	1
8	3	08JUN83	7000	40	S	PJ	1	7	0
8	3	08JUN83	7000	40	E	PJ	1	8	0
8	3	08JUN83	7000	10	S	MF	1	9	0
8	3	08JUN83	7000	10	0	MP	1	10	0
8	3	08JUN83	7000	10	N	SB	2	1	2
8	3	08JUN83	7000	10	N	SB	2	2	0
8	3	08JUN83	7000	10	N	SB	2	3	0
8	3	08JUN83	7000	10	N	SB	2	4	3
8	3	08JUN83	7000	10	N	SB	2	5	0
8	3	08JUN83	7000	10	N	SB	2	6	0
8	3	08JUN83	7000	10	N	SB	2	7	3
8	3	08JUN83	7000	10	N	SB	2	8	1
8	3	08JUN83	7000	10	N	SB	2	9	0
8	3	08JUN83	7000	10	N	SB	2	10	1

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
8	5	08JUN83	7000	10	N	MB	1	1	0
8	5	08JUN83	7000	10	SE	SB	1	2	0
8	5	08JUN83	7000	10	SE	MB	1	3	0
8	5	08JUN83	7000	50	SW	MB	1	4	0
8	5	08JUN83	7000	10	S	SP	1	5	0
8	5	08JUN83	7000	20	SW	MB	1	6	0
8	5	08JUN83	7000	10	E	MB	1	7	1
8	5	08JUN83	7000	40	E	MB	1	8	2
8	5	08JUN83	7000	20	SE	MP	1	9	0
8	5	08JUN83	7000	10	SE	SP	1	10	1
8	5	08JUN83	7000	10	N	SP	2	1	0
8	5	08JUN83	7000	10	N	SP	2	2	1
8	5	08JUN83	7000	10	N	SP	2	3	2
8	5	08JUN83	7000	10	NW	SP	2	4	0
8	5	08JUN83	7000	10	NE	SB	2	5	0
8	5	08JUN83	7000	30	SW	SB	2	6	0
8	5	08JUN83	7000	40	SE	MP	2	7	0
8	5	08JUN83	7000	20	SE	PJ	2	8	0
8	5	08JUN83	7000	10	E	MP	2	9	0
8	5	08JUN83	7000	40	E	PJ	2	10	0
8	11	08JUN83	7000	10	SE	MP	1	1	0
8	11	08JUN83	7000	20	E	MP	1	2	0
8	11	08JUN83	7000	20	SE	MB	1	3	0
8	11	08JUN83	7000	30	SE	MP	1	4	0
8	11	08JUN83	7000	30	S	MP	1	5	0
8	11	08JUN83	7000	10	S	SP	1	6	0
8	11	08JUN83	7000	10	N	SP	1	7	0
8	11	08JUN83	7000	10	N	SP	1	8	0
8	11	08JUN83	7000	10	N	SP	1	9	0
8	11	08JUN83	7000	10	N	MP	1	10	0
8	11	08JUN83	6500	40	NE	MB	2	1	1
8	11	08JUN83	6500	50	S	MP	2	2	0
8	11	08JUN83	6500	40	S	SP	2	3	0
8	11	08JUN83	6500	40	S	PJ	2	4	0
8	11	08JUN83	7000	10	SW	SP	2	5	1
8	11	08JUN83	7000	10	0	SP	2	6	0
8	11	08JUN83	7000	10	SE	SP	2	7	0
8	11	08JUN83	7000	10	E	SP	2	8	0
8	11	08JUN83	7000	10	SE	SP	2	9	0
8	11	08JUN83	7000	10	SE	SP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
8	13	08JUN83	7000	20	SE	MB	1	1	0
8	13	08JUN83	7000	10	SE	SP	1	2	0
8	13	08JUN83	7000	20	SE	MP	1	3	0
8	13	08JUN83	7000	10	SE	MP	1	4	3
8	13	08JUN83	7000	10	SE	MB	1	5	0
8	13	08JUN83	7000	10	0	SB	1	6	0
8	13	08JUN83	7000	10	0	SB	1	7	0
8	13	08JUN83	7000	10	NW	SB	1	8	2
8	13	08JUN83	7000	10	NW	SB	1	9	0
8	13	08JUN83	7000	10	NW	SB	1	10	0
8	13	08JUN83	7000	10	SE	MB	2	1	0
8	13	08JUN83	7000	10	SE	MP	2	2	0
8	13	08JUN83	7000	10	SE	MB	2	3	0
8	13	08JUN83	7000	10	SE	MB	2	4	0
8	13	08JUN83	7000	10	SE	MB	2	5	2
8	13	08JUN83	7000	10	SE	MB	2	6	1
8	13	08JUN83	7000	10	SE	SB	2	7	0
8	13	08JUN83	7000	10	SE	SB	2	8	0
8	13	08JUN83	7000	10	S	MB	2	9	1
8	13	08JUN83	7000	10	0	MB	2	10	1
8	14	08JUN83	7000	10	SE	MP	1	1	0
8	14	08JUN83	7000	10	SE	MP	1	2	0
8	14	08JUN83	7000	10	SE	MP	1	3	0
8	14	08JUN83	7000	10	SE	MP	1	4	0
8	14	08JUN83	7000	10	SE	MP	1	5	0
8	14	08JUN83	7000	10	SE	MP	1	6	0
8	14	08JUN83	7000	10	SE	MB	1	7	0
8	14	08JUN83	7000	10	SE	MB	1	8	0
8	14	08JUN83	7000	10	S	MB	1	9	0
8	14	08JUN83	7000	20	S	MB	1	10	1
8	14	08JUN83	7000	40	E	MB	2	1	1
8	14	08JUN83	7000	30	E	MP	2	2	1
8	14	08JUN83	7000	20	E	MP	2	3	1
8	14	08JUN83	7000	50	S	MP	2	4	0
8	14	08JUN83	7000	40	E	MP	2	5	2
8	14	08JUN83	7000	30	E	MP	2	6	0
8	14	08JUN83	7000	50	SE	MP	2	7	0
8	14	08JUN83	7000	20	SE	MP	2	8	0
8	14	08JUN83	7000	20	E	MP	2	9	0
8	14	08JUN83	7000	10	E	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
8	27	18JUN83	7000	30	SW	MP	1	1	0
8	27	18JUN83	7000	10	NW	MP	1	2	1
8	27	18JUN83	7000	40	NW	MP	1	3	0
8	27	18JUN83	6500	10	0	SB	1	4	0
8	27	18JUN83	6500	10	0	OT	1	5	0
8	27	18JUN83	6500	10	SE	SB	1	6	0
8	27	18JUN83	7000	50	S	MP	1	7	1
8	27	18JUN83	7000	10	S	SP	1	8	0
8	27	18JUN83	7000	10	0	SP	1	9	0
8	27	18JUN83	7000	10	E	SP	1	10	0
8	27	18JUN83	7000	10	N	SB	2	1	0
8	27	18JUN83	7000	10	N	SB	2	2	0
8	27	18JUN83	7000	20	N	SB	2	3	0
8	27	18JUN83	7000	20	N	MB	2	4	0
8	27	18JUN83	7000	50	W	MP	2	5	0
8	27	18JUN83	7000	30	W	MP	2	6	0
8	27	18JUN83	6500	20	N	SB	2	7	0
8	27	18JUN83	6500	10	0	OT	2	8	0
8	27	18JUN83	6500	10	0	OT	2	9	0
8	27	18JUN83	6500	10	0	OT	2	10	0
8	34	07JUN83	7000	10	0	SB	1	1	0
8	34	07JUN83	7000	10	N	SB	1	2	0
8	34	07JUN83	7000	10	0	OT	1	3	0
8	34	07JUN83	7000	10	NW	MB	1	4	0
8	34	07JUN83	7000	10	NW	MB	1	5	0
8	34	07JUN83	7000	20	NW	MB	1	6	0
8	34	07JUN83	7000	40	NW	MB	1	7	0
8	34	07JUN83	7000	20	NW	MB	1	8	0
8	34	07JUN83	7000	40	E	SB	1	9	0
8	34	07JUN83	7000	20	E	MP	1	10	1
8	34	07JUN83	7000	10	N	SB	2	1	0
8	34	07JUN83	7000	10	N	SB	2	2	0
8	34	07JUN83	7000	10	N	SB	2	3	0
8	34	07JUN83	7000	10	N	SB	2	4	0
8	34	07JUN83	7000	10	N	SB	2	5	0
8	34	07JUN83	7000	10	N	SB	2	6	0
8	34	07JUN83	7000	10	N	SB	2	7	0
8	34	07JUN83	7000	10	N	SB	2	8	0
8	34	07JUN83	7000	20	W	MP	2	9	0
8	34	07JUN83	7000	20	W	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
9	3	07JUN83	6500	10	E	PJ	1	1	0
9	3	07JUN83	6500	10	O	PJ	1	2	0
9	3	07JUN83	6500	10	NE	PJ	1	3	0
9	3	07JUN83	6500	20	NW	MP	1	4	0
9	3	07JUN83	6500	20	N	MP	1	5	0
9	3	07JUN83	6500	20	W	MP	1	6	0
9	3	07JUN83	6500	20	NW	SP	1	7	0
9	3	07JUN83	6500	30	N	MP	1	8	0
9	3	07JUN83	6500	20	N	SB	1	9	0
9	3	07JUN83	6500	10	NW	SB	1	10	0
9	3	07JUN83	6500	10	E	SB	2	1	0
9	3	07JUN83	6500	20	E	SP	2	2	0
9	3	07JUN83	6500	10	E	PJ	2	3	0
9	3	07JUN83	6500	40	S	MP	2	4	0
9	3	07JUN83	6500	10	E	SP	2	5	0
9	3	07JUN83	6500	10	E	SP	2	6	0
9	3	07JUN83	6500	10	NE	SP	2	7	0
9	3	07JUN83	6500	20	NE	MP	2	8	0
9	3	07JUN83	6500	20	E	PJ	2	9	0
9	3	07JUN83	6500	10	N	SP	2	10	0
9	7	07JUN83	6500	10	N	MP	1	1	0
9	7	07JUN83	6500	10	N	MP	1	2	0
9	7	07JUN83	6500	30	S	PJ	1	3	0
9	7	07JUN83	6500	10	O	SP	1	4	1
9	7	07JUN83	6500	10	N	SP	1	5	0
9	7	07JUN83	6500	40	NE	MP	1	6	0
9	7	07JUN83	6500	20	N	MP	1	7	0
9	7	07JUN83	6500	30	E	MP	1	8	0
9	7	07JUN83	6500	20	N	SB	1	9	0
9	7	07JUN83	6500	10	O	SB	1	10	0
9	7	07JUN83	6500	10	NW	MP	2	1	0
9	7	07JUN83	6500	10	NW	MP	2	2	0
9	7	07JUN83	6500	20	NW	MP	2	3	0
9	7	07JUN83	6500	20	NE	MP	2	4	0
9	7	07JUN83	6500	20	NE	MP	2	5	0
9	7	07JUN83	6500	20	E	MP	2	6	0
9	7	07JUN83	6500	10	N	MP	2	7	0
9	7	07JUN83	6500	20	N	MB	2	8	1
9	7	07JUN83	6500	10	W	SB	2	9	0
9	7	07JUN83	6500	20	W	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
9	9	07JUN83	6500	10	SW	SP	1	1	0
9	9	07JUN83	6500	10	NE	SP	1	2	0
9	9	07JUN83	6500	10	NE	SP	1	3	0
9	9	07JUN83	6500	10	SW	SB	1	4	0
9	9	07JUN83	6500	10	0	SB	1	5	0
9	9	07JUN83	6500	20	SE	SB	1	6	0
9	9	07JUN83	6500	50	E	MP	1	7	0
9	9	07JUN83	6500	10	E	MP	1	8	0
9	9	07JUN83	6500	10	E	MP	1	9	0
9	9	07JUN83	6500	10	NE	MP	1	10	0
9	9	07JUN83	6500	10	SW	SP	2	1	0
9	9	07JUN83	6500	10	SW	MP	2	2	0
9	9	07JUN83	6500	20	SW	SP	2	3	0
9	9	07JUN83	6500	30	NW	MP	2	4	0
9	9	07JUN83	6500	50	SW	MP	2	5	0
9	9	07JUN83	6500	30	NW	MP	2	6	1
9	9	07JUN83	6500	10	NW	MP	2	7	0
9	9	07JUN83	6500	20	N	MP	2	8	0
9	9	07JUN83	6500	20	NW	MP	2	9	0
9	9	07JUN83	6500	20	NW	MP	2	10	0
9	15	07JUN83	7000	10	NW	SB	1	1	0
9	15	07JUN83	6500	10	N	SB	1	2	0
9	15	07JUN83	6500	10	N	SB	1	3	0
9	15	07JUN83	6500	10	NW	SB	1	4	0
9	15	07JUN83	6500	20	SW	MB	1	5	0
9	15	07JUN83	6500	10	0	SB	1	6	0
9	15	07JUN83	6500	10	0	SP	1	7	0
9	15	07JUN83	6500	10	N	MB	1	8	0
9	15	07JUN83	6500	10	NE	SP	1	9	0
9	15	07JUN83	6500	10	N	MP	1	10	0
9	15	07JUN83	7000	10	NW	SB	2	1	0
9	15	07JUN83	7000	10	NW	SB	2	2	0
9	15	07JUN83	7000	10	NW	SP	2	3	0
9	15	07JUN83	7000	10	NW	SB	2	4	0
9	15	07JUN83	7000	10	NW	SP	2	5	0
9	15	07JUN83	6500	10	NW	SP	2	6	0
9	15	07JUN83	6500	20	N	SP	2	7	0
9	15	07JUN83	6500	20	N	SB	2	8	0
9	15	07JUN83	6500	10	W	SB	2	9	0
9	15	07JUN83	6500	10	W	SB	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
9	21	07JUN83	6500	50	S	MB	1	1	0
9	21	07JUN83	7000	50	SW	MP	1	2	0
9	21	07JUN83	7000	40	S	MP	1	3	0
9	21	07JUN83	7000	10	S	MP	1	4	0
9	21	07JUN83	7000	10	0	SB	1	5	0
9	21	07JUN83	7000	10	0	SP	1	6	0
9	21	07JUN83	7000	10	NW	SB	1	7	0
9	21	07JUN83	7000	10	W	SB	1	8	0
9	21	07JUN83	7000	10	0	SB	1	9	0
9	21	07JUN83	7000	10	NW	SB	1	10	0
9	21	07JUN83	6500	50	E	MP	2	1	0
9	21	07JUN83	6500	50	E	MP	2	2	0
9	21	07JUN83	7000	40	SE	MP	2	3	0
9	21	07JUN83	7000	30	S	MP	2	4	0
9	21	07JUN83	7000	30	SE	MP	2	5	0
9	21	07JUN83	7000	10	N	SP	2	6	0
9	21	07JUN83	7000	10	NW	SP	2	7	1
9	21	07JUN83	7000	10	NW	SB	2	8	0
9	21	07JUN83	7000	10	NW	SB	2	9	0
9	21	07JUN83	7000	10	NW	SB	2	10	0
9	30	07JUN83	7000	10	NW	MP	1	1	0
9	30	07JUN83	6500	10	N	MP	1	2	0
9	30	07JUN83	6500	40	S	PJ	1	3	0
9	30	07JUN83	6500	10	S	MP	1	4	0
9	30	07JUN83	7000	10	0	MP	1	5	0
9	30	07JUN83	7000	10	N	MP	1	6	1
9	30	07JUN83	7000	10	0	MP	1	7	0
9	30	07JUN83	7000	10	NE	MP	1	8	0
9	30	07JUN83	7000	10	NE	SP	1	9	0
9	30	07JUN83	7000	10	0	SP	1	10	0
9	30	07JUN83	7000	10	NW	MP	2	1	0
9	30	07JUN83	7000	10	NW	MP	2	2	0
9	30	07JUN83	7000	20	NW	MP	2	3	0
9	30	07JUN83	7000	10	SW	MP	2	4	0
9	30	07JUN83	7000	10	0	PJ	2	5	0
9	30	07JUN83	7000	10	N	PJ	2	6	0
9	30	07JUN83	7000	10	N	MP	2	7	0
9	30	07JUN83	6500	40	W	MB	2	8	0
9	30	07JUN83	6500	10	N	MP	2	9	0
9	30	07JUN83	7000	20	SW	MP	2	10	0

RIO BLANCO OIL SHALE COMPANY
WILDLIFE MONITORING PROGRAM - TRACT C-A

REPORT YEAR=1983 SEASON=WINTER

BLOCK	SAMPLE UNIT	DATE	ELEV	SLOPE	ASPECT	VEG TYPE	TRAN-SECT	PLOT	PELLET COUNT
9	35	07JUN83	7000	10	NW	SB	1	1	0
9	35	07JUN83	7000	10	NW	SP	1	2	0
9	35	07JUN83	7000	50	S	MP	1	3	0
9	35	07JUN83	7000	10	W	MP	1	4	0
9	35	07JUN83	7000	20	W	MP	1	5	0
9	35	07JUN83	7000	10	SW	MP	1	6	0
9	35	07JUN83	7000	10	W	PJ	1	7	0
9	35	07JUN83	7000	10	W	PJ	1	8	0
9	35	07JUN83	7000	10	SE	MP	1	9	0
9	35	07JUN83	7000	10	NW	PJ	1	10	0
9	35	07JUN83	7000	10	0	SP	2	1	0
9	35	07JUN83	7000	30	NE	SP	2	2	3
9	35	07JUN83	7000	30	NE	SP	2	3	0
9	35	07JUN83	7000	20	NE	SB	2	4	0
9	35	07JUN83	7000	10	N	SB	2	5	0
9	35	07JUN83	6500	10	NE	SP	2	6	0
9	35	07JUN83	6500	20	NE	SP	2	7	2
9	35	07JUN83	7000	40	SW	MP	2	8	0
9	35	07JUN83	7000	40	SW	MP	2	9	0
9	35	07JUN83	7000	20	N	MP	2	10	1

APPENDIX 4-O

Aquatic Ecology Studies

APPENDIX 4-1

Abiotic Monitoring

APPENDIX 4-1.1

Stream Physical Data

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = CG-1
REPORT YEAR = 1983 DATE = 12APR83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	22
ESTIMATED WIND DIRECTION (DEG)	123
ESTIMATED WIND SPEED (MPH)	5
PERCENT CLOUD COVER	100

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =9.3 REP B =9.5 REP C =9.5
SPECIFIC CONDUCTANCE	REP A =1400 REP B =1350 REP C =1400
DISSOLVED OXYGEN	REP A =14.5 REP B =14.5 REP C =13.5
PH	REP A =7.1 REP B =7.1 REP C =7.2
VISUAL TURBIDITY ESTIMATE	CLEAR
CALCULATED TURBIDITY	REP A =2.2 REP B =2.2
TOTAL ALKALINITY	REP A =. REP B =.
PHENYL ALKALINITY	REP A =. REP B =.

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	MEDIUM SILTING, FEW STONES
FLOW DURING SURVEY INDEX	HIGH WATER - SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	0
BANK VEGETATION RATING	NO CANOPY COVER (0 % COVER)
BANK STABILITY RATING	UNSTABLE - MODERATE EROSION
BANK CONDITION RATING	LIGHT USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	STABLE - LIGHT CHANNEL EROSION
STREAM CHANNEL CONDITION RATING	LIGHT USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	1.01
DISTANCE LEFT BANK - 1 (METERS)	0.2
DEPTH OF WATER - 1 (METERS)	0.05
VELOCITY - 1 (RPM)	70
DISTANCE LEFT BANK - 2 (METERS)	0.35
DEPTH OF WATER - 2 (METERS)	0.06
VELOCITY - 2 (RPM)	136
DISTANCE LEFT BANK - 3 (METERS)	0.5
DEPTH OF WATER - 3 (METERS)	0.05
VELOCITY - 3 (RPM)	112
DISTANCE LEFT BANK - 4 (METERS)	.
DEPTH OF WATER - 4 (METERS)	.
VELOCITY - 4 (RPM)	.
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = YC-1
REPORT YEAR = 1983 DATE = 12APR83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	14
ESTIMATED WIND DIRECTION (DEG)	123
ESTIMATED WIND SPEED (MPH)	15
PERCENT CLOUD COVER	100

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =6.5 REP B =6.5 REP C =6
SPECIFIC CONDUCTANCE	REP A =1800 REP B =1775 REP C =1800
DISSOLVED OXYGEN	REP A =16.5 REP B =16 REP C =16
PH	REP A =8.2 REP B =8.2 REP C =8.2
VISUAL TURBIDITY ESTIMATE	CLEAR
CALCULATED TURBIDITY	REP A =4.2 REP B =4.2
TOTAL ALKALINITY	REP A =. REP B =.
PHENYL ALKALINITY	REP A =. REP B =.

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	HEAVY SILTING, NO SOLID SUBSTRATE
FLOW DURING SURVEY INDEX	HIGH WATER - SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	0
BANK VEGETATION RATING	NO CANOPY COVER (0 % COVER)
BANK STABILITY RATING	UNSTABLE - MODERATE EROSION
BANK CONDITION RATING	AVERAGE USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	STABLE - LIGHT CHANNEL EROSION
STREAM CHANNEL CONDITION RATING	LIGHT USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	1.4
DISTANCE LEFT BANK - 1 (METERS)	0.25
DEPTH OF WATER - 1 (METERS)	0.04
VELOCITY - 1 (RPM)	16
DISTANCE LEFT BANK - 2 (METERS)	0.35
DEPTH OF WATER - 2 (METERS)	0.04
VELOCITY - 2 (RPM)	62
DISTANCE LEFT BANK - 3 (METERS)	0.45
DEPTH OF WATER - 3 (METERS)	0.04
VELOCITY - 3 (RPM)	106
DISTANCE LEFT BANK - 4 (METERS)	.
DEPTH OF WATER - 4 (METERS)	.
VELOCITY - 4 (RPM)	.
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = YC-2
REPORT YEAR = 1983 DATE = 14APR83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	34
ESTIMATED WIND DIRECTION (DEG)	90
ESTIMATED WIND SPEED (MPH)	5
PERCENT CLOUD COVER	2

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =10	REP B =10	REP C =10
SPECIFIC CONDUCTANCE	REP A =2800	REP B =2800	REP C =2800
DISSOLVED OXYGEN	REP A =12	REP B =12	REP C =12
PH	REP A =7.8	REP B =7.8	REP C =7.8
VISUAL TURBIDITY ESTIMATE	CLEAR		
CALCULATED TURBIDITY	REP A =5.5	REP B =5.5	
TOTAL ALKALINITY	REP A =.	REP B =.	
PHENYL ALKALINITY	REP A =.	REP B =.	

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	MEDIUM SILTING, FEW STONES
FLOW DURING SURVEY INDEX	HIGH WATER - SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	0
BANK VEGETATION RATING	NO CANOPY COVER (0 % COVER)
BANK STABILITY RATING	TOTALLY STABLE - NO EROSION
BANK CONDITION RATING	AVERAGE USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	TOTALLY STABLE - NO EROSION
STREAM CHANNEL CONDITION RATING	AVERAGE USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	1.68
DISTANCE LEFT BANK - 1 (METERS)	0.01
DEPTH OF WATER - 1 (METERS)	0.02
VELOCITY - 1 (RPM)	90
DISTANCE LEFT BANK - 2 (METERS)	0.02
DEPTH OF WATER - 2 (METERS)	0.02
VELOCITY - 2 (RPM)	100
DISTANCE LEFT BANK - 3 (METERS)	0.04
DEPTH OF WATER - 3 (METERS)	0.02
VELOCITY - 3 (RPM)	36
DISTANCE LEFT BANK - 4 (METERS)	.
DEPTH OF WATER - 4 (METERS)	.
VELOCITY - 4 (RPM)	.
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = CG-1
REPORT YEAR = 1983 DATE = 11JUL83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	35
ESTIMATED WIND DIRECTION (DEG)	0
ESTIMATED WIND SPEED (MPH)	0
PERCENT CLOUD COVER	0

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =16	REP B =15.5	REP C =15.5
SPECIFIC CONDUCTANCE	REP A =1100	REP B =1150	REP C =1150
DISSOLVED OXYGEN	REP A =8	REP B =7.9	REP C =7.8
PH	REP A =7.8	REP B =7.9	REP C =8
VISUAL TURBIDITY ESTIMATE	CLEAR		
CALCULATED TURBIDITY	REP A =.	REP B =.	
TOTAL ALKALINITY	REP A =.	REP B =.	
PHENYL ALKALINITY	REP A =.	REP B =.	

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	NO SILTING, MEDIUM STONES (3-10 CM)
FLOW DURING SURVEY INDEX	HIGH WATER - SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	0
BANK VEGETATION RATING	NO CANOPY COVER (0 % COVER)
BANK STABILITY RATING	TOTALLY STABLE - HEAVILY ERODED
BANK CONDITION RATING	LIGHT USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	UNSTABLE - MODERATE EROSION
STREAM CHANNEL CONDITION RATING	NEGLIGIBLE USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	3.5
DISTANCE LEFT BANK - 1 (METERS)	0.1
DEPTH OF WATER - 1 (METERS)	0.08
VELOCITY - 1 (RPM)	172
DISTANCE LEFT BANK - 2 (METERS)	0.4
DEPTH OF WATER - 2 (METERS)	0.19
VELOCITY - 2 (RPM)	172
DISTANCE LEFT BANK - 3 (METERS)	0.65
DEPTH OF WATER - 3 (METERS)	0.08
VELOCITY - 3 (RPM)	204
DISTANCE LEFT BANK - 4 (METERS)	.
DEPTH OF WATER - 4 (METERS)	.
VELOCITY - 4 (RPM)	.
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = YC-1
REPORT YEAR = 1983 DATE = 11JUL83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	40
ESTIMATED WIND DIRECTION (DEG)	0
ESTIMATED WIND SPEED (MPH)	0
PERCENT CLOUD COVER	0

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =18.5	REP B =18	REP C =18
SPECIFIC CONDUCTANCE	REP A =1600	REP B =1600	REP C =1600
DISSOLVED OXYGEN	REP A =9.4	REP B =9.2	REP C =9.2
PH	REP A =8.4	REP B =8.2	REP C =8.4
VISUAL TURBIDITY ESTIMATE	MILKY		
CALCULATED TURBIDITY	REP A =.	REP B =.	
TOTAL ALKALINITY	REP A =.	REP B =.	
PHENYL ALKALINITY	REP A =.	REP B =.	

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	MEDIUM SILTING, FEW STONES
FLOW DURING SURVEY INDEX	HIGH WATER - SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	0
BANK VEGETATION RATING	NO CANOPY COVER (0 % COVER)
BANK STABILITY RATING	HIGHLY STABLE - VERY LIGHT EROSION
BANK CONDITION RATING	HEAVY TO SEVERE USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	UNSTABLE - MODERATE EROSION
STREAM CHANNEL CONDITION RATING	NEGLIGIBLE USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	1.8
DISTANCE LEFT BANK - 1 (METERS)	0.2
DEPTH OF WATER - 1 (METERS)	0.05
VELOCITY - 1 (RPM)	62
DISTANCE LEFT BANK - 2 (METERS)	0.5
DEPTH OF WATER - 2 (METERS)	0.15
VELOCITY - 2 (RPM)	100
DISTANCE LEFT BANK - 3 (METERS)	0.8
DEPTH OF WATER - 3 (METERS)	0.15
VELOCITY - 3 (RPM)	168
DISTANCE LEFT BANK - 4 (METERS)	1
DEPTH OF WATER - 4 (METERS)	0.15
VELOCITY - 4 (RPM)	148
DISTANCE LEFT BANK - 5 (METERS)	1.3
DEPTH OF WATER - 5 (METERS)	0.1
VELOCITY - 5 (RPM)	84

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = YC-2
REPORT YEAR = 1983 DATE = 12JUL83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	42
ESTIMATED WIND DIRECTION (DEG)	0
ESTIMATED WIND SPEED (MPH)	0
PERCENT CLOUD COVER	0

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =11.5 REP B =11.4 REP C =11.5
SPECIFIC CONDUCTANCE	REP A =2150 REP B =2150 REP C =2150
DISSOLVED OXYGEN	REP A =9.8 REP B =9.8 REP C =9.8
PH	REP A =8.6 REP B =8.5 REP C =8.5
VISUAL TURBIDITY ESTIMATE	CLEAR
CALCULATED TURBIDITY	REP A =. REP B =.
TOTAL ALKALINITY	REP A =. REP B =.
PHENYL ALKALINITY	REP A =. REP B =.

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	LARGE BOULDERS, STONES, ETC (> 50 CM)
FLOW DURING SURVEY INDEX	HIGH WATER - SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	45
BANK VEGETATION RATING	VERY LIGHT SHADING (< 15 % COVER)
BANK STABILITY RATING	STABLE - LIGHT EROSION
BANK CONDITION RATING	AVERAGE USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	STABLE - LIGHT CHANNEL EROSION
STREAM CHANNEL CONDITION RATING	AVERAGE USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	2.5
DISTANCE LEFT BANK - 1 (METERS)	0.1
DEPTH OF WATER - 1 (METERS)	0.05
VELOCITY - 1 (RPM)	188
DISTANCE LEFT BANK - 2 (METERS)	0.2
DEPTH OF WATER - 2 (METERS)	0.09
VELOCITY - 2 (RPM)	212
DISTANCE LEFT BANK - 3 (METERS)	0.3
DEPTH OF WATER - 3 (METERS)	0.09
VELOCITY - 3 (RPM)	212
DISTANCE LEFT BANK - 4 (METERS)	0.4
DEPTH OF WATER - 4 (METERS)	0.05
VELOCITY - 4 (RPM)	172
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = YC-2
REPORT YEAR = 1983 DATE = 12OCT83

LOCAL WEATHER CONDITIONS	
AIR TEMPERATURE (DEG C)	19.3
ESTIMATED WIND DIRECTION (DEG)	180
ESTIMATED WIND SPEED (MPH)	5
PERCENT CLOUD COVER	0

FIELD WATER QUALITY MEASUREMENTS	
WATER TEMPERATURE	REP A =13.5 REP B =13.5 REP C =13.5
SPECIFIC CONDUCTANCE	REP A =2600 REP B =2600 REP C =2600
DISSOLVED OXYGEN	REP A =11.6 REP B =11.6 REP C =11.8
PH	REP A =7.8 REP B =7.9 REP C =7.8
VISUAL TURBIDITY ESTIMATE	MILKY
CALCULATED TURBIDITY	REP A =0.22 REP B =.
TOTAL ALKALINITY	REP A =. REP B =.
PHENYL ALKALINITY	REP A =. REP B =.

STREAM EVALUATION INDEXES	
SUBSTRATE COMPOSITION INDEX	MEDIUM SILTING, FEW STONES
FLOW DURING SURVEY INDEX	HIGH WATER - NON-SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	.
BANK VEGETATION RATING	ABOVE AVG SHADING (55-75 % COVER)
BANK STABILITY RATING	UNSTABLE - MODERATE EROSION
BANK CONDITION RATING	LIGHT USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	STABLE - LIGHT CHANNEL EROSION
STREAM CHANNEL CONDITION RATING	LIGHT USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS	
TOTAL STREAM WIDTH (METERS)	0.91
DISTANCE LEFT BANK - 1 (METERS)	0.02
DEPTH OF WATER - 1 (METERS)	0.05
VELOCITY - 1 (RPM)	72
DISTANCE LEFT BANK - 2 (METERS)	0.09
DEPTH OF WATER - 2 (METERS)	0.09
VELOCITY - 2 (RPM)	86
DISTANCE LEFT BANK - 3 (METERS)	0.15
DEPTH OF WATER - 3 (METERS)	0.13
VELOCITY - 3 (RPM)	88
DISTANCE LEFT BANK - 4 (METERS)	0.24
DEPTH OF WATER - 4 (METERS)	0.1
VELOCITY - 4 (RPM)	74
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = CC-1
REPORT YEAR = 1983 DATE = 13OCT83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	21.5
ESTIMATED WIND DIRECTION (DEG)	90
ESTIMATED WIND SPEED (MPH)	20
PERCENT CLOUD COVER	70

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =13	REP B =13	REP C =13
SPECIFIC CONDUCTANCE	REP A =1500	REP B =1500	REP C =1450
DISSOLVED OXYGEN	REP A =13.5	REP B =12.5	REP C =12
PH	REP A =7.8	REP B =7.8	REP C =7.8
VISUAL TURBIDITY ESTIMATE	CLEAR		
CALCULATED TURBIDITY	REP A =0.54	REP B =.	
TOTAL ALKALINITY	REP A =.	REP B =.	
PHENYL ALKALINITY	REP A =.	REP B =.	

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	LIGHT SILTING, SMALL STONES
FLOW DURING SURVEY INDEX	HIGH WATER - NON-SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	10
BANK VEGETATION RATING	AVERAGE SHADING (50 % COVER)
BANK STABILITY RATING	UNSTABLE - MODERATE EROSION
BANK CONDITION RATING	HEAVY TO SEVERE USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	STABLE - LIGHT CHANNEL EROSION
STREAM CHANNEL CONDITION RATING	HEAVY TO SEVERE USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	6.75
DISTANCE LEFT BANK - 1 (METERS)	.
DEPTH OF WATER - 1 (METERS)	.
VELOCITY - 1 (RPM)	.
DISTANCE LEFT BANK - 2 (METERS)	.
DEPTH OF WATER - 2 (METERS)	.
VELOCITY - 2 (RPM)	.
DISTANCE LEFT BANK - 3 (METERS)	.
DEPTH OF WATER - 3 (METERS)	.
VELOCITY - 3 (RPM)	.
DISTANCE LEFT BANK - 4 (METERS)	.
DEPTH OF WATER - 4 (METERS)	.
VELOCITY - 4 (RPM)	.
DISTANCE LEFT BANK - 5 (METERS)	.
DEPTH OF WATER - 5 (METERS)	.
VELOCITY - 5 (RPM)	.

AQUATIC ECOLOGY MONITORING PROGRAM - STREAM PHYSICAL DATA

STATION = YC-1
REPORT YEAR = 1983 DATE = 13OCT83

LOCAL WEATHER CONDITIONS

AIR TEMPERATURE (DEG C)	20.5
ESTIMATED WIND DIRECTION (DEG)	180
ESTIMATED WIND SPEED (MPH)	5
PERCENT CLOUD COVER	10

FIELD WATER QUALITY MEASUREMENTS

WATER TEMPERATURE	REP A =11.5 REP B =11.5 REP C =11.5
SPECIFIC CONDUCTANCE	REP A =1600 REP B =1700 REP C =1650
DISSOLVED OXYGEN	REP A =13.2 REP B =13.5 REP C =13.2
PH	REP A =8.1 REP B =8.2 REP C =8.1
VISUAL TURBIDITY ESTIMATE	CLEAR
CALCULATED TURBIDITY	REP A =0.43 REP B =.
TOTAL ALKALINITY	REP A =. REP B =.
PHENYL ALKALINITY	REP A =. REP B =.

STREAM EVALUATION INDEXES

SUBSTRATE COMPOSITION INDEX	MEDIUM SILTING, FEW STONES
FLOW DURING SURVEY INDEX	HIGH WATER - NON-SPRING RUNOFF
PERCENT RIPARIAN COVER ESTIMATE	0
BANK VEGETATION RATING	AVERAGE SHADING (50 % COVER)
BANK STABILITY RATING	STABLE - LIGHT EROSION
BANK CONDITION RATING	MODERATE USE AND DAMAGE
STREAM CHANNEL STABILITY RATING	STABLE - LIGHT CHANNEL EROSION
STREAM CHANNEL CONDITION RATING	AVERAGE USE AND DAMAGE

STREAM WIDTH AND FLOW MEASUREMENTS

TOTAL STREAM WIDTH (METERS)	0.61
DISTANCE LEFT BANK - 1 (METERS)	0.03
DEPTH OF WATER - 1 (METERS)	0.06
VELOCITY - 1 (RPM)	42
DISTANCE LEFT BANK - 2 (METERS)	0.15
DEPTH OF WATER - 2 (METERS)	0.11
VELOCITY - 2 (RPM)	44
DISTANCE LEFT BANK - 3 (METERS)	0.3
DEPTH OF WATER - 3 (METERS)	0.15
VELOCITY - 3 (RPM)	58
DISTANCE LEFT BANK - 4 (METERS)	0.46
DEPTH OF WATER - 4 (METERS)	0.11
VELOCITY - 4 (RPM)	58
DISTANCE LEFT BANK - 5 (METERS)	0.61
DEPTH OF WATER - 5 (METERS)	0.11
VELOCITY - 5 (RPM)	42

APPENDIX 4-1.2

Duncan's Multiple Range Test Results for an Analysis of Variance Model

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TEMP
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=16.0035

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=10.8652

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	15.000	9	YC-2
A			
A	13.332	25	CG-1
A			
A	12.500	8	YC-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=27906.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=10.8652

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	2708.3	9	YC-2
B	1775.0	8	YC-1
C	1349.0	25	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: DO
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=4.16672

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=10.8652

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	11.087	8	YC-1
A			
A	10.711	9	YC-2
B	7.896	25	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=.0880636

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=10.8652

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	8.2667	9	YC-2
A			
A	8.2000	8	YC-1
B	7.7560	25	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TEMP
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=16.0035

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=2.39203

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	19.000	1	1977
	A			
B	A	15.667	3	1979
B	A			
B	A	14.563	8	1982
B	A			
B	A	14.333	3	1978
B	A			
B	A	14.000	2	1976
B	A			
B	A	13.333	3	1975
B	A			
B	A	13.000	3	1980
B	A			
B	A	12.889	9	1981
B	A			
B	A	12.200	9	1983
B				
B		10.000	1	1974

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=27906.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=2.39203

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	2062.5	8	1982
	A			
	A	1986.1	9	1981
	A			
B	A	1838.9	9	1983
B				
B	C	1566.7	3	1978
	C			
D	C	1398.3	3	1980
D	C			
D	C	1376.7	3	1975
D				
D		1200.0	1	1977
D				
D		1200.0	1	1974
D				
D		1200.0	3	1979
D				
D		1175.0	2	1976

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: DO
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=4.16672

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=2.39203

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	12.056	9	1983
	A			
B	A	9.189	9	1981
B	A			
B	A	8.900	1	1974
B	A			
B	A	8.650	8	1982
B	A			
B	A	8.600	3	1979
B	A			
B	A	8.367	3	1980
B	A			
B	A	8.000	1	1977
B				
B		7.450	2	1976
B				
B		6.600	3	1975
B				
B		6.533	3	1978

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=.0880636

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=2.39203

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	8.3375	8	1982
	A			
	A	8.0667	3	1979
	A			
	A	8.0667	3	1978
	A			
	A	7.9556	9	1983
	A			
	A	7.8778	9	1981
	A			
	A	7.8667	3	1975
	A			
B	A	7.8000	1	1977
B	A			
B	A	7.8000	1	1974
B	A			
B	A	7.7500	2	1976
B				
B		7.2000	3	1980

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TEMP
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=16.0035

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=13.9523

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	16.923	13	SUMMER
B	12.521	14	SPRING
B B	11.533	15	FALL

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTwISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=27906.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=13.9523

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	1803.2	14	SPRING
A			
A	1765.0	15	FALL
B	1583.1	13	SUMMER

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: DO
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=4.16672

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=13.9523

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	9.4667	15	FALL
A			
A	9.3714	14	SPRING
A			
A	8.4077	13	SUMMER

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
STREAM PHYSICAL DATA

THREE-WAY ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=28 MSE=.0880636

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=13.9523

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	SEASON
	A	8.1308	13	SUMMER
	A			
B	A	7.9267	15	FALL
B				
B		7.8071	14	SPRING

APPENDIX 4-1.3

Stream Water Chemistry Data

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= CC-1 DATE=12APR83

CALCIUM	82.00
MAGNESIUM	69.00
SODIUM	180.00
POTASSIUM	1.30
IRON	0.06
BICARBONATE	566.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	382.00
CHLORIDE	9.60
TOT DIS SOLID	1054.00
TOT SUS SOLID	.
ALKALINITY	477.00
TOT HARDNESS	.
PHOSPHATE	0.03
AMMONIA	-0.05
NITRATE	-0.10
FLUORIDE	0.60
DIS ORG CAR	8.00
ARSENIC	-0.01
BORON	0.08
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	22.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= YC-1 DATE=12APR83

CALCIUM	96.00
MAGNESIUM	102.00
SODIUM	220.00
POTASSIUM	2.10
IRON	0.08
BICARBONATE	636.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	548.00
CHLORIDE	15.40
TOT DIS SOLID	1316.00
TOT SUS SOLID	.
ALKALINITY	540.00
TOT HARDNESS	.
PHOSPHATE	0.04
AMMONIA	-0.05
NITRATE	-0.10
FLUORIDE	0.60
DIS ORG CAR	12.00
ARSENIC	-0.01
BORON	0.18
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	17.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= YC-2 DATE=14APR83

CALCIUM	64.00
MAGNESIUM	210.00
SODIUM	430.00
POTASSIUM	2.90
IRON	-0.05
BICARBONATE	1069.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	991.00
CHLORIDE	31.00
TOT DIS SOLID	2360.00
TOT SUS SOLID	.
ALKALINITY	899.00
TOT HARDNESS	.
PHOSPHATE	0.14
AMMONIA	0.09
NITRATE	-0.10
FLUORIDE	1.00
DIS ORG CAR	14.00
ARSENIC	-0.01
BORON	0.42
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	18.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= YC-1 DATE=11JUL83

CALCIUM	102.00
MAGNESIUM	95.00
SODIUM	180.00
POTASSIUM	1.87
IRON	-0.05
BICARBONATE	579.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	525.00
CHLORIDE	20.00
TOT DIS SOLID	1313.00
TOT SUS SOLID	.
ALKALINITY	493.00
TOT HARDNESS	.
PHOSPHATE	0.02
AMMONIA	-0.05
NITRATE	8.50
FLUORIDE	0.40
DIS ORG CAR	8.00
ARSENIC	-0.01
BORON	0.33
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	21.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= CG-1 DATE=12JUL83

CALCIUM	86.00
MAGNESIUM	71.00
SODIUM	150.00
POTASSIUM	1.56
IRON	-0.05
BICARBONATE	512.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	393.00
CHLORIDE	14.00
TOT DIS SOLID	1034.00
TOT SUS SOLID	.
ALKALINITY	440.00
TOT HARDNESS	.
PHOSPHATE	0.03
AMMONIA	-0.05
NITRATE	1.00
FLUORIDE	0.50
DIS ORG CAR	10.00
ARSENIC	-0.01
BORON	0.31
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	23.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= YC-2 DATE=12JUL83

CALCIUM	66.00
MAGNESIUM	170.00
SODIUM	340.00
POTASSIUM	3.20
IRON	0.07
BICARBONATE	683.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	889.00
CHLORIDE	30.00
TOT DIS SOLID	1915.00
TOT SUS SOLID	.
ALKALINITY	628.00
TOT HARDNESS	.
PHOSPHATE	0.02
AMMONIA	-0.05
NITRATE	-0.10
FLUORIDE	0.50
DIS ORG CAR	11.00
ARSENIC	-0.01
BORON	0.30
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	4.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= CG-1 DATE=13OCT83

CALCIUM	91.00
MAGNESIUM	84.00
SODIUM	180.00
POTASSIUM	1.60
IRON	0.07
BICARBONATE	557.00
CARBONATE	19.00
HYDROXIDE	-0.50
SULFATES	476.00
CHLORIDE	13.30
TOT DIS SOLID	1171.00
TOT SUS SOLID	.
ALKALINITY	501.00
TOT HARDNESS	.
PHOSPHATE	0.01
AMMONIA	-0.05
NITRATE	0.70
FLUORIDE	0.50
DIS ORG CAR	8.00
ARSENIC	0.01
BORON	0.34
MERCURY	-0.30
MOLYBDENUM	0.10
SELENIUM	-0.01
SILICA	20.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= YC-1 DATE=13OCT83

CALCIUM	77.00
MAGNESIUM	110.00
SODIUM	200.00
POTASSIUM	1.80
IRON	0.05
BICARBONATE	526.00
CARBONATE	-1.00
HYDROXIDE	-0.50
SULFATES	629.00
CHLORIDE	20.40
TOT DIS SOLID	1339.00
TOT SUS SOLID	.
ALKALINITY	445.00
TOT HARDNESS	.
PHOSPHATE	-0.01
AMMONIA	-0.05
NITRATE	3.10
FLUORIDE	0.30
DIS ORG CAR	10.00
ARSENIC	-0.01
BORON	0.34
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	17.00
VANADIUM	-0.10

AQUATIC ECOLOGY MONITORING PROGRAM - CHEMISTRY DATA
BASIC WATER QUALITY CONSTITUENTS
REPORT YEAR = 1983

STATION= YC-2 DATE=13OCT83

CALCIUM	70.00
MAGNESIUM	200.00
SODIUM	430.00
POTASSIUM	3.90
IRON	0.08
BICARBONATE	951.00
CARBONATE	34.00
HYDROXIDE	-0.50
SULFATES	1088.00
CHLORIDE	33.50
TOT DIS SOLID	2359.00
TOT SUS SOLID	.
ALKALINITY	855.00
TOT HARDNESS	.
PHOSPHATE	0.04
AMMONIA	0.21
NITRATE	-0.10
FLUORIDE	0.50
DIS ORG CAR	7.00
ARSENIC	0.01
BORON	0.56
MERCURY	-0.30
MOLYBDENUM	-0.10
SELENIUM	-0.01
SILICA	19.00
VANADIUM	-0.10

APPENDIX 4-1.4

Duncan's Multiple Range Test Results for an Analysis of Variance Model

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. CATIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=153.002

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	97.625	8	YC-1
B	81.667	9	CG-1
C	56.667	9	YC-2

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. CATIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=603.571

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	194.67	9	YC-2
B	108.13	8	YC-1
C	71.33	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.Q. CATIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=440.958

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	413.67	9	YC-2
B	215.00	8	YC-1
C	167.78	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. CATIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: K
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=0.636594

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	3.5667	9	YC-2
B	2.1712	8	YC-1
B			
B	1.3756	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. CATIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=603.571

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	142.89	9	SPRING
B	117.00	9	FALL
B			
B	115.00	8	SUMMER

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. ANIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=7854.36

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	907.56	9	YC-2
B	605.25	8	YC-1
B			
B	550.00	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. ANIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=4376.58

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	990.59	9	YC-2
B	588.20	8	YC-1
C	383.39	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. ANIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=55.5435

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	STATION
	A	7.2600	9	YC-2
	A			
B	A	1.2222	9	CG-1
B				
B		-0.7238	8	YC-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT MAJOR B.W.G. ANIONS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=7854.36

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	SEASON
	A	751.22	9	SPRING
	A			
B	A	665.56	9	FALL
B				
B		651.13	8	SUMMER

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT GENERAL B.W.G. PARAMETERS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=5272.82

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	813.00	9	YC-2
B	519.13	8	YC-1
B B	471.00	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT GENERAL B.W.G. PARAMETERS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=17121.7

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	2219.0	9	YC-2
B	1389.0	8	YC-1
C	1037.9	9	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT GENERAL B.W.G. PARAMETERS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=19 MSE=17121.7

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.64

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	SEASON
	A	1634.9	9	SPRING
	A			
B	A	1527.7	9	FALL
B				
B		1495.1	8	SUMMER

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT GENERAL B.M.G. PARAMETERS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SIO2
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=18 MSE=13.2011

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.30769

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	21.750	8	CG-1
B	17.500	8	YC-1
C	12.222	9	YC-2

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM

THREE-WAY ANALYSIS OF VARIANCE
TO EVALUATE SIGNIFICANT GENERAL B.W.G. PARAMETERS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SIO2
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=18 MSE=13.2011

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.30769

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	19.000	8	SPRING
A			
A	17.889	9	FALL
B	13.875	8	SUMMER

APPENDIX 4-2

Biotic Monitoring

APPENDIX 4-2.1

Benthic Macroinvertebrate Count Data

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= CG-1
SAMPLING DATE= 12APR83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
CHELIFERA MACQUART	0	0	1	0.3
TRIBE DIAMESINI	2	0	0	0.7
HAPLOTAXIS CORDIOIDES	3	3	0	2.0
TRIBE METRIOCNEMINI	1	1	0	0.7
TRIBE ORTHOCLADIINI	1	1	0	0.7
PALPOMYIA GR. SPECIES MEI	0	0	2	0.7
FAMILY TUBIFICIDAE	4	0	7	3.7
TOTAL SPECIES OBSERVED= 7				
TOTAL COUNT	11	5	10	8.7
MEAN COUNT	1.6	0.7	1.4	1.2

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= YC-1
SAMPLING DATE= 12APR83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
CHELIFERA MACQUART	1	0	0	0.3
ORDER COLLEMBOLA	0	1	0	0.3
TRIBE METRIOCNEMINI	0	2	2	1.3
TRIBE ORTHOCLADIINI	2	7	12	7.0
PALPOMYIA GR. SPECIES MEI	0	1	0	0.3
TRIBE TANYTARSINI	1	3	0	1.3
FAMILY TUBIFICIDAE	1	1	1	1.0
TOTAL SPECIES OBSERVED= 7				
TOTAL COUNT	5	15	15	11.7
MEAN COUNT	0.7	2.1	2.1	1.7

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= YC-2
SAMPLING DATE= 14APR83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
ACARI SPECIES	1	3	2	2.0
ARGIA SPECIES	1	2	0	1.0
CALLIBAETIS SPECIES	0	0	1	0.3
CHIRONOMIDAE PUPAE	3	2	2	2.3
TRIBE CHIRONOMINI	4	3	5	4.0
TRIBE DIAMESINI	0	0	1	0.3
ENALLAGMA SPECIES	1	0	0	0.3
EUPARYPHUS SPECIES	1	0	0	0.3
HELOBDELLA STAGNALIS	84	65	73	74.0
HYALELLA AZTECA SAUSSURE	23	26	27	25.3
HYDROPTILA DALMAN	0	0	3	1.0
TRIBE METRIOCNEMINI	16	17	32	21.7
NEMOTELUS GEOFFROY	0	1	0	0.3
TRIBE ORTHOCLADIINI	92	90	103	95.0
PALPOMYIA GR. SPECIES WEI	271	121	90	161
TRIBE PENTANEURINI	0	1	0	0.3
SIMULIUM SPECIES	37	55	44	45.3
TABANUS SPECIES	1	1	2	1.3
TRIBE TANYTARSINI	3	19	4	8.7
FAMILY TUBIFICIDAE	126	183	491	267
TOTAL SPECIES OBSERVED= 20				
TOTAL COUNT	664	589	880	711
MEAN COUNT	33.2	29.4	44.0	35.5

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= CG-1
SAMPLING DATE= 11JUL83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
AGABUS SPECIES	0	0	1	0.3
TRIBE DIAMESINI	12	4	1	5.7
TRIBE METRIOCNEMINI	2	1	1	1.3
TRIBE ORTHOCLADIINI	8	0	1	3.0
FAMILY TUBIFICIDAE	0	0	1	0.3
TOTAL SPECIES OBSERVED= 5				
TOTAL COUNT	22	5	5	10.7
MEAN COUNT	4.4	1.0	1.0	2.1

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= YC-1
SAMPLING DATE= 11JUL83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
CHIRONOMIDAE PUPAE	13	70	3	28.7
TRIBE DIAMESINI	0	4	2	2.0
HELOBDELLA STAGNALIS	4	0	0	1.3
TRIBE METRIOCNEMINI	29	181	7	69.3
TRIBE ORTHOCLADIINI	3	1	1	1.7
FAMILY TUBIFICIDAE	5	1	2	2.7
TOTAL SPECIES OBSERVED= 6				
TOTAL COUNT	45	257	15	106
MEAN COUNT	7.5	42.8	2.5	17.6

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= YC-2
SAMPLING DATE= 120CL83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
ACARI SPECIES	2	6	1	3.0
ARGIA SPECIES	0	2	1	1.0
BAETIS TRICAUDATUS DODDS	3	5	4	4.0
CHIRONOMIDAE PUPAE	1	1	1	1.0
ENALLAGMA SPECIES	0	1	0	0.3
HELOBDELLA STAGNALIS	1	2	2	1.7
HYALELLA AZTECA SAUSSURE	24	62	63	49.7
LIMNOPHORA PUBINEAU-DESOI	0	1	0	0.3
LYMNAEA SPECIES	7	9	18	11.3
TRIBE METRIOCNEMINI	14	17	15	15.3
TRIBE ORTHOCLADIINI	4	20	10	11.3
PALPOMYIA GR. SPECIES MEI	12	15	1	8.7
TRIBE PENTANEURINI	0	1	2	1.0
SIMULIUM SPECIES	79	278	191	183
TRIBE TANYTARSINI	0	2	0	0.7
FAMILY TUBIFICIDAE	15	52	48	38.3
TOTAL SPECIES OBSERVED= 15				
TOTAL COUNT	160	474	357	530
MEAN COUNT	10.0	29.6	22.3	20.5

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= CC-1
SAMPLING DATE= 13OCT83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
BAETIS TRICAUDATUS DODDS	19	3	5	9.0
FAMILY CAPNIIDAE	2	11	6	6.3
CHIRONOMIDAE PUPAE	2	1	0	1.0
TRIBE CHIRONOMINI	0	1	0	0.3
TRIBE CORYNONEURINI	0	0	1	0.3
HEXATOMA LATHETILLE	0	1	0	0.3
LIMNOPHORA ROBINEAU-DESCI	5	0	13	6.0
TRIBE METRIOCNEMINI	3	2	1	2.0
TRIBE ORTHOCLADIINI	4	3	6	4.3
PROTOPTILA ROSS	0	1	0	0.3
SIMULIUM SPECIES	9	4	2	5.0
TRIBE TANYTARSINI	1	0	2	1.0
FAMILY TUBIFICIDAE	35	52	118	68.3
TOTAL SPECIES OBSERVED= 13				
TOTAL COUNT	80	79	154	104
MEAN COUNT	6.2	6.1	11.8	8.0

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= YC-1
SAMPLING DATE= 13OCT83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
BAETIS TRICAUDATUS DODDS	184	5	124	104
FAMILY CAPNIIDAE	4	0	2	2.0
CHIRONOMIDAE PUPAE	17	0	18	11.7
TRIBE CORYNONEURINI	3	1	0	1.3
HELOBDELLA STAGNALIS	5	0	0	1.7
HYALELLA AZTECA SAUSSURE	2	0	0	0.7
LIMNOPHORA POSIMEAU-DESOI	45	7	46	32.7
TRIBE METRIOCNEMINI	85	6	72	54.3
TRIBE ORTHOCLADIINI	75	0	36	37.3
TRIBE PENTANEURINI	3	10	0	4.3
SIMULIUM SPECIES	125	1	40	55.3
TRIBE TANYTARSINI	0	1	2	1.0
FAMILY TUBIFICIDAE	1577	133	1112	941
TOTAL SPECIES OBSERVED= 13				
TOTAL COUNT	2126	164	1452	1247
MEAN COUNT	164	12.6	112	95.9

BENTHIC MACROINVERTEBRATE COUNT DATA COLLECTED DURING THE 1983 SEASON

STATION= YC-2
SAMPLING DATE= 12OCT83
SAMPLING METHOD= MODIFIED HESS (ELLIPTICAL)
CONVERSION FACTOR TO THE NUMBER OF ORGANISMS / M2 = 19.2

TAXONOMIC NAME	REP #1	REP #2	REP #3	MEAN REPLICATE
ACARI SPECIES	23	49	4	25.3
CALLIBAETIS SPECIES	3	45	6	18.7
TRIBE CHIRONOMINI	0	2	0	0.7
FAMILY CORIXIDAE	0	2	0	0.7
DEROMECTES SPECIES	0	2	0	0.7
ENALLAGMA SPECIES	2	2	0	1.3
EUPARYPHUS SPECIES	1	0	2	1.0
HALIPLUS SPECIES	1	0	0	0.3
HELOPOELLA STAGNALIS	29	31	90	50.0
HYALELLA AZTECA SAUSSURE	290	356	374	340
HYDROPSYCHE SPECIES	0	0	2	0.7
ISCHNURA SPECIES	1	1	2	1.3
LYMNAEA SPECIES	2	0	2	1.3
TRIBE METRIOCNEMINI	6	3	0	3.0
OPTIOSERVUS SPECIES	1	0	0	0.3
TRIBE ORTHOCLADIINI	1	0	0	0.3
PALPOMYIA GP. SPECIES MEI	1	2	4	2.3
TRIBE PENTANEURINI	0	0	2	0.7
SIMULIUM SPECIES	2	8	0	3.3
TRIBE TANYTARSINI	3	3	4	3.3
FAMILY TUBIFICIDAE	24	19	806	283
TOTAL SPECIES OBSERVED= 21				
TOTAL COUNT	390	525	1300	738
MEAN COUNT	18.6	25.0	61.9	35.2

APPENDIX 4-2.2

Duncan's Multiple Range Test Results
for Log Transformed Density Data

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

TWO-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
DENSITY DATA ARE LOG10 TRANSFORMED
STATION LOCATION=CG-1

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=144 MSE=2.32915

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=27.0605

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	3.7810	50	1980
	A			
B	A	3.5493	42	1982
B	A			
B	A	3.3401	25	1983
B	A			
B	A	3.0952	26	1979
B				
B		2.7001	15	1981

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

TWO-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
DENSITY DATA ARE LOG10 TRANSFORMED
STATION LOCATION=CG-1

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=144 MSE=2.32915

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=51.928

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	3.7230	54	SUMMER
A			
A	3.5486	49	FALL
B	2.8945	46	SPRING

APPENDIX 4-2.3

Duncan's Multiple Range Test Results for Log Transformed Density Data

Major Taxonomic Groups

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=CLASS OLIGOCHAETA

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=14 MSE=1.69077

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.22454

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	5.9694	9	1983
A			
A	5.6453	7	1981
A			
A	5.0991	10	1982
B	3.7181	7	1979
B			
B	3.2125	9	1980

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=CLASS OLIGOCHAETA

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=14 MSE=1.69077

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=11.25

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	7.1552	10	YC-2
B	4.9205	8	YC-1
C	3.6773	24	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=ORDER PLECOPTERA

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=1 MSE=0

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=1.5

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	6.7315	1	1979
B	4.2244	2	1983
C	2.9156	3	1982
D	2.5494	1	1981
D	2.5494	2	1980

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=FAMILY CHIRONOMIDAE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=97 MSE=1.21822

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=20.7166

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	4.7300	34	1982
	A			
B	A	4.3284	18	1980
B	A			
B	A	3.9069	42	1983
B				
B		3.5343	24	1981
	C	2.4220	11	1979

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=FAMILY CHIRONOMIDAE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=97 MSE=1.81622

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=42.8946

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	SEASON
	A	4.2865	41	SPRING
	A			
B	A	4.0781	42	SUMMER
B				
B		3.6360	46	FALL

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=FAMILY CHIRONOMIDAE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=97 MSE=1.81822

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=40.2604

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STATION
A	4.6775	32	YC-1
A			
A	4.2560	38	YC-2
B	3.4385	39	CG-1

RIO BLANCO OIL SHALE COMPANY
AQUATIC ECOLOGY MONITORING PROGRAM
BENTHIC MACROINVERTEBRATE STUDIES

THREE-WAY MODEL 1 ANALYSIS OF VARIANCE ON LOG TRANSFORMED DATA
MAJOR TAXONOMIC GROUP=PHYLUM ARTHROPODA

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: LOG_DEN
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=81 MSE=4.79824

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=30.4487

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	STATION
	A	4.4890	53	YC-2
	A			
B	A	3.7794	19	YC-1
B				
B		3.2840	37	CG-1

APPENDIX 5-O

Hydrology Studies

APPENDIX 5-1.1

1983 Water Chemistry Data Listing

- o Alluvial Aquifers
- o Developmental Activities Monitoring
- o Springs and Seeps
- o Upper Aquifer

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S22 ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
1	06JAN83	7.3	2450	1920	629	105	151	2.9	313	742	-0.01	24.5
2	05OCT83	7.4	2400	1659	597	80	160	2.0	220	705	-0.01	38.6

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
1	.	932	.	0.48	-0.05	0.05	0.45	24	.	12	-0.01	-0.01	-0.1
2	.	750	.	0.50	-0.05	0.08	0.40	29	.	13	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
1	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S24 ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
3	06JAN83	7.2	1800	1426	564	143	117	1.85	191	666	-0.01	16.2
4	05OCT83	7.2	1800	1334	536	120	110	2.60	160	630	-0.01	23.4

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
3	.	601	.	0.37	-0.05	0.03	0.61	23	.	9	-0.01	-0.01	-0.1
4	.	561	.	0.40	1.21	0.05	0.31	19	.	8	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
3	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S27S ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
5	05JAN83	7.2	1500	1092	554	110	86	1.70	154	658	-0.01	12.60	.	409	.
6	05APR83	7.4	1450	1122	466	110	92	1.49	140	545	-0.01	11.80	.	440	.
7	13JUL83	7.2	1700	1265	499	114	89	2.00	150	585	-0.01	0.15	.	507	.
8	05OCT83	7.3	1550	1171	514	110	93	1.86	140	604	-0.01	13.20	.	465	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
5	0.3	1.64	0.18	0.30	24	.	8	0.02	-0.01	-0.1	-0.1	-0.3	.	.	.
6	0.7	3.03	0.16	0.30	22	.	9	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
7	0.4	-0.05	0.07	0.25	23	.	24	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
8	0.3	0.20	0.04	0.27	24	.	5	-0.01	-0.01	-0.1	-0.1	-0.3	0.1	0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	-0.01	-0.1	.	-0.01	0.01	-0.5	-0.1	-0.01	0.01	0.07	-0.05	2.38	-0.5	0.09	-10

--------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28AD ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
9	06JAN83	7.2	2600	2084	646	150	173	3.0	291	749	-0.01	26.3
10	05OCT83	7.2	2800	2049	618	120	180	2.7	270	734	-0.01	30.5

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
9	.	1037	.	0.44	-0.05	0.06	0.41	25	.	12	-0.01	-0.01	-0.1
10	.	1012	.	0.50	0.06	0.26	0.40	24	.	9	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
9	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28D ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
11	06JAN83	7.4	2200	1708	621	100	143	3.0	264	735	-0.01	21.3
12	05OCT83	7.2	3000	2229	609	140	200	2.3	270	719	-0.01	30.0

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
11	.	790	.	0.53	3.22	0.20	0.43	24	.	12	-0.01	-0.01	-0.1
12	.	1159	.	0.50	2.21	0.07	0.37	25	.	9	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
11	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28S ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
13	05OCT83	7.2	1800	1276	458	71	100	0.84	200	536	-0.01	20.6

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL
13	.	561	.	0.6	0.04	0.11	0.37	26	.	17	0.01	-0.01	0.1	-0.1

OBS	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
13	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S7 ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
14	05JAN83	7.1	1200	838	420	100	60	1.33	100	492	-0.01	9.2
15	05OCT83	7.0	1450	1147	434	130	83	1.33	110	508	-0.01	15.9

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
14	.	501	.	0.36	-0.05	0.02	0.31	22	.	9	-0.01	-0.01	-0.1
15	.	484	.	0.40	-0.05	0.10	0.24	24	.	7	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
14	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	-0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-SR ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2
16	05JAN83	7.2	1000	682	375	87	53	1.07	76	443	-0.01	13.5	.
17	05OCT83	7.4	1100	810	366	100	62	1.02	76	435	-0.01	15.5	.

OBS	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL
16	214	.	0.33	-0.05	0.03	0.28	21	.	11	-0.01	-0.01	-0.1	-0.1
17	272	.	0.30	0.08	0.02	0.21	22	.	9	-0.01	-0.01	-0.1	-0.1

OBS	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
16	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YBOXF

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
18	24JAN83	7.5	1350	1032	478	82	69	1.31	180	565	-0.01	9.80	.	365	.
19	11APR83	7.4	1400	1107	441	83	68	1.32	180	529	-0.01	9.00	.	386	.
20	12JUL83	8.0	1200	973	406	86	67	1.32	130	473	-0.01	0.12	.	352	.
21	13OCT83	7.5	1550	1106	501	88	76	1.40	170	569	0.14	9.10	.	436	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
18	0.5	-0.05	0.04	0.24	19	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
19	0.8	-0.05	0.03	0.25	24	.	5	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
20	0.5	-0.05	0.02	0.33	23	.	8	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
21	0.6	-0.05	0.02	0.28	23	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	0.2	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	-0.01	1.2	.	-0.01	0.02	-0.5	-0.1	-0.01	0.05	0.07	-0.05	2.81	-0.5	0.03	-10

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YCOFL

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
22	24JAN83	7.8	1450	1148	546	91	82	0.75	190	648	-0.01	15.10	.	415	.
23	11APR83	7.7	1500	1250	546	96	85	1.40	190	643	-0.01	14.40	.	438	.
24	12JUL83	8.1	1500	1262	485	96	82	3.30	180	565	-0.01	0.17	.	497	.
25	13OCT83	7.5	1700	1257	481	95	90	1.80	180	537	0.18	15.80	.	534	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
22	0.3	0.05	-0.01	0.33	14	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
23	0.6	-0.05	0.02	0.09	18	.	8	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
24	0.4	-0.05	0.03	0.38	23	.	12	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
25	0.4	-0.05	-0.01	0.28	18	.	9	-0.01	-0.01	-0.1	-0.1	-0.3	0.1	0.2	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	-0.01	0.9	.	-0.01	0.01	-0.5	-0.1	-0.01	0.04	0.07	-0.05	2.41	-0.5	0.02	-10

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YCOIN

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
26	08NOV83	7.7	1500	1073	510	55	84	0.26	190	579	12	15.2	.	409	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
26	1.05	0.07	-0.01	0.26	30	.	11.2	-0.01	-0.01	-0.1	0.1	-0.3	0.1	0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
26	-0.01	-0.1	.	-0.01	0.07	-0.5	-0.1	-0.01	0.1	0.02	-0.05	7.2	-0.5	0.05	-10

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YERPO

OBS	DATE	PH	SPC COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F	NH3	PO4
27	07DEC83	7.4	5900	4600	1270	4.4	72	3.6	1500	349	5.7	4.4	.	1520	.	2.1	0.4	0.01

OBS	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
27	0.24	10	.	80	-0.01	-0.01	-0.1	0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YOLFF

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
28	24JAN83	7.5	1400	1034	488	41	77	0.36	205	577	-0.01	7.90	.	365	.
29	11APR83	7.3	1400	1038	491	45	78	0.42	200	570	-0.01	8.70	.	385	.
30	12JUL83	7.8	1550	1138	.	57	86	0.39	190	561	-0.01	0.11	.	435	.
31	13OCT83	7.5	1500	1137	510	56	89	0.32	180	574	0.12	9.80	.	426	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
28	1.1	0.14	0.01	0.24	20	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
29	1.1	0.13	-0.01	0.09	26	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
30	1.2	0.15	-0.01	0.34	27	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
31	1.0	-0.05	-0.01	0.32	25	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	0.2	0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31	-0.01	0.5	.	-0.01	-0.01	-0.5	-0.1	-0.01	0.11	0.01	-0.05	7.2	-0.5	0.07	-10

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YMET3

OBS	DATE	PH	SPCOND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
32	24JAN83	7.7	1350	1034	488	83	70	1.22	180	577	-0.01	10.70	.	380	.	0.5
33	11APR83	7.6	1400	1074	477	85	72	1.32	180	562	-0.01	9.80	.	388	.	0.8
34	12JUL83	8.1	1100	1004	423	87	68	1.62	140	491	-0.01	0.13	.	385	.	0.5
35	13OCT83	7.5	1600	1162	499	92	83	1.50	170	560	0.13	11.60	.	461	.	0.5

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI
32	-0.05	0.03	0.26	16	.	5	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
33	-0.05	0.03	0.27	24	.	8	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
34	-0.05	0.02	0.36	23	.	10	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
35	-0.05	-0.01	0.35	22	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	0.1	0.2	-0.01	-0.01

OBS	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
32	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33	.	.	.	.	.	.	.	.	.	.	.	.	.	.
34	.	.	.	.	.	.	.	.	.	.	.	.	.	.
35	0.9	.	-0.01	-0.01	-0.5	-0.1	-0.01	0.05	0.08	-0.05	2.69	-0.5	-0.01	-10

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSEOF

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
36	24JAN83	7.4	1800	1496	648	113	113	1.70	230	767	-0.01	18.9	.	600	.
37	11APR83	7.5	1800	1430	604	101	107	2.10	230	716	-0.01	16.7	.	561	.
38	12JUL83	7.6	1800	1549	493	104	92	1.75	190	578	-0.01	0.2	.	547	.
39	13OCT83	7.5	1950	1447	546	110	110	1.80	210	642	-0.01	19.5	.	627	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
36	0.3	0.10	0.03	0.24	18	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
37	0.6	0.07	0.05	0.21	18	.	13	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
38	0.4	-0.05	0.02	0.42	22	.	8	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
39	0.4	-0.05	0.02	0.36	20	.	7	-0.01	-0.01	-0.1	0.1	-0.3	-0.01	0.2	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
37	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
38	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
39	-0.01	0.9	.	-0.01	-0.01	-0.5	-0.1	-0.01	0.04	0.02	-0.05	3.02	-0.5	0.04	-10

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
40	25AUG83	.	.	66762	6582	9	235	0.31	22000	-5	35.26	1098.8

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL
40	.	39664	.	8.1	0.92	0.19	0.1	26	.	358	-0.01	-0.01	-0.1	0.2

OBS	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
40	0.5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
41	10AUG83	.	.	2409	395	71	83	0.39	470	425	-0.01	52.20
42	07DEC83	7.2	4900	4940	629	140	170	1.20	930	689	-0.01	0.92

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
41	.	1212	.	19.50	44.27	0.06	0.66	34	.	323	0.04	0.02	-0.1
42	.	2580	.	0.33	0.74	0.02	1.22	51	.	550	0.05	0.02	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
41	0.2	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
42	0.2	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2
43	10AUG83	.	.	1838	404	90	91	0.45	330	451	9.0	19.90	.
44	07DEC83	7.1	6000	5120	526	87	95	7.10	890	562	0.2	0.62	.

OBS	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL
43	999	.	7.2	11.56	0.01	0.61	29	.	66	0.02	0.01	0.1	0.2
44	2930	.	10.3	8.00	-0.01	1.23	30	.	90	-0.01	-0.01	-0.1	1.0

OBS	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
43	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
44	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
45	10AUG83	.	.	2729	364	72	80	0.35	490	358	-0.01	70.30
46	07DEC83	6.9	3750	3550	469	110	130	0.64	630	509	-0.01	0.55

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
45	.	1406	.	30.00	95.93	0.03	0.69	35	.	559	0.04	0.02	0.1
46	.	1830	.	0.35	0.61	0.15	0.84	44	.	450	0.05	0.03	-0.1

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BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
45	0.1	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
46	0.2	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
47	25AUG83	.	.	27150	1839	52	245	4.64	8000	1728	207	234.1

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
47	.	16975	.	12.5	0.39	0.12	1.02	43	.	185	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
47	0.4	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
48	25AUG83	.	.	6014	221	103	154	6.13	1026	252	-0.01	79.8

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
48	.	3768	.	11.2	1.04	0.03	1.52	34	.	104	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
48	0.7	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F	NH3	PO4
49	25AUG83	.	.	5773	466	100	97	8.1	989	523	-0.01	85.6	.	3267	.	11.4	0.49	0.01

OBS	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
49	1.92	30	.	70	-0.01	-0.01	-0.1	1	0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
50	25AUG83	.	.	83241	7668	48	280	1.32	27000	6791	11.13	3113.2

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL
50	.	46147	.	16.3	4.93	0.43	0.58	58	.	207	-0.01	-0.01	-0.1	0.4

OBS	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
50	0.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
51	25AUG83	.	.	81713	3582	50	305	1.4	26000	2946	673	3089.5

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL
51	.	47766	.	16	4.8	0.49	0.53	60	.	221	-0.01	-0.01	-0.1	0.5

OBS	HO	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
51	0.8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F	NH3	PO4
52	27AUG83	.	.	6400	497	91	76	10.5	1094	573	-0.01	92.9	.	3612	.	12.8	14.64	0.02

OBS	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
52	1.71	32	.	56	-0.01	-0.01	-0.1	1.1	0.4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
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REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
53	10AUG83	.	.	2316	419	93	95	0.55	450	473	-0.01	35.2
54	07DEC83	7.1	3700	3490	445	100	120	0.62	640	482	-0.01	0.8

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
53	.	1263	.	10.6	14.90	0.01	0.91	33	.	129	0.02	0.02	0.1
54	.	1880	.	26.8	0.58	0.01	0.91	41	.	430	0.05	0.03	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
53	0.2	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
54	0.2	-0.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

REPORT YEAR=1983 TYPE=DEVELOPMENT ACTIVITIES MONITORING SYSTEM STATION=YSWPO

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL
55	10AUG83	.	.	4038	535	81	74	5.3	710	526	0.45	133.2
56	07DEC83	7.1	6000	5090	476	63	59	9.6	830	468	0.37	1.2

OBS	NO2	SO4	SO3	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V
55	.	2120	.	8.1	19.85	0.03	2.48	29	.	62	-0.01	-0.01	0.1
56	.	2910	.	9.8	11.00	0.02	2.26	30	.	62	-0.01	-0.01	-0.1

OBS	MOL	HG	AL	BA	BE	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
55	0.2	0.5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
56	1.3	0.4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

---------- REPORT YEAR=1983 TYPE=LOWER AQUIFER STATION=GS-15L ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
57	12JUL83	8.5	2600	2322	1411	2.4	35	2.4	700	1666	-0.01	0.51	.	202	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
57	5.3	1.1	0.03	0.99	5	.	16	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
57	-0.01	0.2	1	0.01	-0.01	-0.5	-0.1	-0.01	0.25	0.05	-0.05	0.07	-0.5	0.03	-10

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=AM-30 ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
58	12JUL83	8	1000	790	357	38	40	0.43	170	418	-0.01	0.36	.	252	.	1

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
58	0.31	-0.01	0.21	16	.	5	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
58	-0.01	-0.1	-1	-0.01	-0.01	-0.5	-0.1	-0.01	0.05	0.05	-0.05	4.3	-0.5	0.01	-10

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-7020 ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
59	11JAN83	7.7	1450	1018	465	36	75	0.45	201	550	-0.01	10.0	.	379	.
60	05APR83	7.7	1350	996	519	36	78	0.30	210	611	-0.01	7.9	.	376	.
61	13JUL83	7.1	1300	1105	465	44	79	0.42	190	545	-0.01	8.7	.	393	.
62	13OCT83	7.5	1450	1065	489	46	86	0.37	200	524	0.25	10.6	.	422	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
59	1.6	0.24	-0.01	0.37	21	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
60	1.7	0.58	-0.01	0.24	20	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
61	1.5	0.18	-0.01	0.27	21	.	9	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01
62	1.1	0.10	-0.01	0.27	25	.	5	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
59	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
61	-0.01	0.1	-1	-0.01	-0.01	-0.5	-0.1	-0.01	0.1	0.05	-0.05	8.3	-0.5	0.03	-10
62	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-705AU ----------

OBS	DATE	PH	SPCOND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
63	12JAN83	7.4	1250	870	464	59	64	0.27	133	549	-0.01	9.6	.	262	.	0.50
64	05APR83	7.6	1200	900	478	63	71	0.23	140	559	-0.01	8.7	.	288	.	0.52
65	12JUL83	7.0	1300	1122	451	110	85	0.27	104	526	-0.01	8.8	.	416	.	0.50
66	13OCT83	6.9	1200	959	450	96	74	0.37	110	529	-0.01	12.7	.	353	.	0.40

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI
63	0.20	-0.01	0.16	32	.	10	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
64	0.39	-0.01	0.25	33	.	9	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
65	0.14	0.01	0.24	33	.	13	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01	-0.01
66	-0.05	-0.01	0.23	34	.	5	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.

OBS	BF	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
63	.	.	.	.	.	.	.	.	.	.	.	.	.	.
64	.	.	.	.	.	.	.	.	.	.	.	.	.	.
65	0.3	-1	-0.01	-0.01	-0.5	-0.1	-0.01	0.06	0.07	-0.05	5.6	-0.5	0.02	-10
66	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-7090 ----------

OBS	DATE	PH	SPCOND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
67	11JAN83	7.0	1500	1166	507	110	87	0.41	132	597	-0.01	13.70	.	441	.	0.60
68	05APR83	7.1	1600	1270	497	120	95	0.37	140	593	-0.01	14.90	.	483	.	0.57
69	13JUL83	6.9	1600	1646	465	190	105	0.81	150	550	-0.01	0.23	.	745	.	0.50
70	13OCT83	7.3	1500	1164	448	130	88	0.57	130	530	-0.01	19.10	.	503	.	0.30

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MCL	HG	AL	BA	BE	BI
67	0.16	-0.01	0.35	37	.	11	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
68	-0.05	0.01	0.24	34	.	9	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
69	-0.05	-0.01	0.28	22	.	11	-0.01	-0.01	-0.1	0.4	-0.3	-0.1	-0.1	-0.01	-0.01
70	-0.05	-0.01	0.23	25	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.

OBS	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
67	.	.	.	.	.	.	.	.	.	.	.	.	.	.
68	.	.	.	.	.	.	.	.	.	.	.	.	.	.
69	0.1	-1	-0.01	-0.01	-0.5	-0.1	-0.01	0.03	0.12	-0.05	3.7	-0.5	0.17	-10
70	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D10 ----------

OBS	DATE	PH	SPC COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
71	12JAN83	7.2	1350	1010	466	84	80	0.21	120	550	-0.01	10.50	.	360	.	0.50
72	04APR83	7.4	1300	948	470	78	81	0.26	120	543	-0.01	6.20	.	334	.	0.52
73	13JUL83	6.9	1200	1171	454	120	85	0.29	113	552	-0.01	0.11	.	456	.	0.40
74	13OCT83	6.9	1450	1063	426	105	81	0.24	110	507	-0.01	13.20	.	423	.	0.30

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MCL	HG	AL	BA	BE	BI
71	-0.05	-0.01	0.11	33	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
72	-0.05	-0.01	0.25	30	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
73	0.13	-0.01	0.25	33	.	8	-0.01	-0.01	-0.1	0.3	-0.3	-0.1	-0.1	-0.01	-0.01
74	-0.05	-0.01	0.27	29	.	9	-0.01	-0.01	-0.1	0.1	-0.3	.	.	.	.

OBS	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
71	.	.	.	.	.	.	.	.	.	.	.	.	.	.
72	.	.	.	.	.	.	.	.	.	.	.	.	.	.
73	0.2	1	-0.01	-0.01	-0.5	-0.1	-0.01	0.1	0.12	-0.05	4.2	-0.5	0.14	-10
74	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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BASIC AND TRACE WATER CHEMISTRY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D3U ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
75	11JAN83	7.3	1425	1022	434	40	75	0.43	180	510	-0.01	9.50	.	399	.
76	05APR83	7.6	1300	984	372	35	79	0.35	200	436	-0.01	8.20	.	432	.
77	13JUL83	7.5	1700	1391	341	86	104	0.50	180	400	-0.01	0.22	.	696	.
78	14OCT83	7.2	2200	1667	479	120	140	0.50	190	566	-0.01	17.30	.	811	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
75	2.5	0.33	-0.01	0.20	16	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
76	1.6	0.45	-0.01	0.22	8	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.
77	1.7	0.27	-0.01	0.25	5	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	0.1	-0.01
78	1.1	0.34	-0.01	0.14	16	.	4	-0.01	-0.01	0.1	0.1	-0.3	.	.	.

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
76	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
77	-0.01	0.1	1	-0.01	-0.01	-0.5	-0.1	-0.01	0.13	0.72	-0.05	8.7	-0.5	0.04	-10
78	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-MDF2CU ----------

OBS	DATE	PH	SPC COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
79	10JAN83	7.7	1500	1102	472	48	88	0.42	180	569	-0.01	10.8	.	432	.	1.80
80	04APR83	7.7	1700	1260	469	69	110	1.05	210	540	-0.01	15.7	.	570	.	1.01
81	13JUL83	7.1	1750	1636	490	140	140	0.34	150	569	-0.01	9.9	.	759	.	0.80
82	14OCT83	7.0	1650	1217	522	105	97	0.31	140	621	-0.01	9.2	.	463	.	0.60

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI
79	0.25	-0.01	0.37	29	.	9	0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
80	0.65	-0.01	0.28	32	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	.	.	.	.
81	0.21	0.01	0.25	31	.	8	0.02	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01	-0.01
82	-0.05	-0.01	0.12	39	.	3	0.02	-0.01	0.1	-0.1	-0.3	.	.	.	.

OBS	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZM	ZR
79	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	-0.1	1	0.01	-0.01	-0.5	-0.1	-0.01	0.12	0.04	-0.05	9.6	-0.5	0.03	-10
82	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M10U ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
83	12JUL83	7.3	1200	979	390	61	84	0.34	120	457	-0.01	9	.	384	.	1.1

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
83	0.19	-0.01	0.24	30	.	7	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
83	-0.01	-0.1	1	-0.01	-0.01	-0.5	-0.1	-0.01	0.05	0.03	-0.05	6.6	-0.5	0.06	-10

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M12U ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
84	12JUL83	7.3	1350	1068	435	60	72	0.79	180	513	-0.01	6.8	.	397	.	0.6

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI
84	1.11	0.02	0.23	35	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01	-0.01

OBS	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
84	0.1	2	-0.01	-0.01	-0.5	-0.1	-0.01	0.14	0.05	-0.05	5.25	-0.5	0.03	-10

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M3U ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3	F
85	12JUL83	9.6	1200	890	567	4	42	1.5	260	258	2.05	0.14	.	178	.	2

OBS	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE	BI
85	1.36	0.06	0.19	2	.	6	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01	-0.01

OBS	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
85	0.1	-1	-0.01	-0.01	-0.5	-0.1	-0.01	0.09	0.01	-0.05	1.95	-0.5	0.01	-10

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=OS-150 ----------

OBS	DATE	PH	SPC_COND	TDS	ALK	CA	MG	K	NA	HCO3	CO3	CL	NO2	SO4	SO3
86	12JUL83	8	1850	1672	494	88	130	0.74	250	578	-0.01	0.11	.	770	.

OBS	F	NH3	PO4	B	SIO2	FE	DOC	AS	SE	V	MOL	HG	AL	BA	BE
86	0.6	0.22	-0.01	0.37	25	.	4	-0.01	-0.01	-0.1	-0.1	-0.3	-0.1	-0.1	-0.01

OBS	BI	BR	CD	CR	CU	GA	GE	PB	LI	MN	NI	SR	TI	ZN	ZR
86	-0.01	0.3	1	0.01	-0.01	-0.5	-0.1	-0.01	0.19	0.29	-0.05	5	-0.5	0.03	-10

APPENDIX 5-1.2

1983 Field Measurements Data

- o Developmental Activities Monitoring
- o Springs and Seeps

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YBOXFL ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
1	05JAN83	10.5	7.6	1400	179.5	.	.
2	13JAN83	11.0	7.5	1350	179.5	.	.
3	19JAN83	9.5	7.5	1400	179.5	.	.
4	24JAN83	8.5	7.5	1350	179.5	.	.
5	03FEB83	9.0	7.6	1350	179.5	.	.
6	09FEB83	10.0	7.5	1400	166.1	.	.
7	16FEB83	10.3	7.5	1400	179.5	.	.
8	23FEB83	12.7	7.5	1350	206.4	.	.
9	03MAR83	10.5	7.4	1300	193.0	.	.
10	09MAR83	12.0	7.4	1300	219.9	.	.
11	16MAR83	13.0	7.4	1400	273.8	.	.
12	24MAR83	9.9	7.3	1400	242.4	.	.
13	31MAR83	10.2	7.5	1400	288.9	.	.
14	07APR83	9.6	7.0	1400	273.8	.	.
15	11APR83	9.8	7.4	1400	260.3	.	.
16	21APR83	14.0	7.9	1150	1180.3	.	.
17	27APR83	7.7	8.1	1100	2428.0	.	.
18	05MAY83	12.2	8.1	1200	.	.	.
19	11MAY83	6.7	8.1	1150	.	.	.
20	17MAY83	7.9	8.0	1100	.	.	.
21	25MAY83	13.6	8.0	1100	.	.	.
22	02JUN83	7.7	8.1	1100	.	.	.
23	08JUN83	9.5	8.0	1100	.	.	.
24	16JUN83	14.5	7.8	1050	.	.	.
25	23JUN83	14.5	7.9	1100	.	.	.
26	29JUN83	14.4	8.0	1150	.	.	.
27	07JUL83	20.8	7.8	1150	.	.	.
28	12JUL83	19.3	8.0	1200	.	.	.
29	19JUL83	13.7	7.8	1400	.	.	.
30	28JUL83	16.2	7.6	1350	.	.	.
31	03AUG83	13.1	7.8	1400	.	.	.
32	11AUG83	14.4	7.6	1450	.	.	.
33	17AUG83	14.7	7.6	1375	623.8	.	.
34	24AUG83	14.8	7.7	1450	623.8	.	.
35	31AUG83	14.3	7.8	1500	605.9	.	.
36	08SEP83	15.1	7.6	1400	587.9	.	.
37	15SEP83	14.5	7.7	1400	605.9	.	.
38	20SEP83	11.9	7.5	1500	605.9	.	.
39	28SEP83	13.7	7.6	1500	605.9	.	.
40	06OCT83	13.8	7.6	1600	605.9	.	.
41	13OCT83	10.3	7.5	1550	605.9	.	.
42	20OCT83	12.7	7.7	1550	587.9	.	.
43	26OCT83	13.8	7.5	1550	587.9	.	.
44	02NOV83	12.4	7.5	1600	605.9	.	.
45	08NOV83	8.7	7.6	1600	623.8	.	.
46	17NOV83	10.7	7.7	1550	605.9	.	.
47	23NOV83	9.3	7.9	1500	587.9	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YBOXFL ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
48	30NOV83	9.6	7.6	1500	605.9	.	.
49	07DEC83	10.1	7.6	1500	605.9	.	.
50	16DEC83	9.5	7.7	1450	605.9	.	.
51	21DEC83	8.2	7.5	1500	587.9	.	.
52	30DEC83	9.8	7.6	1500	570.0	.	.

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOFL ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
53	05JAN83	6.0	7.8	1500	.	.	.
54	13JAN83	6.5	7.7	1450	.	.	.
55	19JAN83	5.5	7.7	1500	23.8	.	.
56	24JAN83	2.0	7.8	1450	23.8	.	.
57	03FEB83	3.0	7.7	1400	26.0	.	.
58	09FEB83	6.0	7.7	1500	23.8	.	.
59	16FEB83	5.8	7.7	1500	28.7	.	.
60	23FEB83	8.5	7.5	900	45.8	.	.
61	03MAR83	4.5	7.6	700	83.9	.	.
62	09MAR83	9.5	7.6	500	152.1	.	.
63	16MAR83	13.0	7.6	1500	34.1	.	.
64	24MAR83	5.5	7.5	1550	31.4	.	.
65	31MAR83	7.4	7.6	1550	28.7	.	.
66	07APR83	7.7	7.5	1550	31.4	.	.
67	11APR83	7.2	7.7	1500	28.7	.	.
68	21APR83	15.0	7.7	1500	26.0	.	.
69	27APR83	8.3	8.2	1300	212.7	.	.
70	05MAY83	15.3	8.0	1350	.	.	.
71	11MAY83	7.2	8.0	1250	.	.	.
72	17MAY83	9.1	8.0	1225	.	.	.
73	25MAY83	18.4	7.9	1400	.	.	.
74	02JUN83	9.7	7.9	1425	.	.	.
75	08JUN83	13.6	7.9	1400	.	.	.
76	16JUN83	19.2	7.7	1400	.	.	.
77	23JUN83	21.8	7.9	1300	.	.	.
78	29JUN83	20.8	8.0	1350	.	.	.
79	07JUL83	26.5	7.9	1650	.	.	.
80	12JUL83	26.0	8.1	1500	.	.	.
81	19JUL83	17.5	8.1	1700	.	.	.
82	28JUL83	24.4	7.8	1600	.	.	.
83	03AUG83	18.7	8.0	1550	.	.	.
84	11AUG83	19.7	8.0	1500	.	.	.
85	17AUG83	21.2	7.9	1450	411.1	.	.
86	24AUG83	17.7	7.8	1600	378.3	.	.
87	31AUG83	19.7	8.0	1600	346.0	.	.
88	08SEP83	20.6	7.8	1600	250.4	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOFL ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
89	15SEP83	17.3	7.9	1650	250.4	.	.
90	20SEP83	10.4	7.6	1700	333.9	.	.
91	28SEP83	15.8	7.6	1700	239.7	.	.
92	06OCT83	16.9	7.8	1800	267.9	.	.
93	13OCT83	10.4	7.5	1700	297.1	.	.
94	20OCT83	12.7	7.8	1850	207.3	.	.
95	26OCT83	13.2	7.6	1800	212.7	.	.
96	02NOV83	12.7	7.7	1850	191.6	.	.
97	08NOV83	4.4	7.7	1800	219.9	.	.
98	17NOV83	8.5	7.8	1850	197.5	.	.
99	23NOV83	3.6	8.0	1750	184.0	.	.
100	30NOV83	4.8	7.8	1700	175.0	.	.
101	07DEC83	5.8	7.8	1700	175.0	.	.
102	16DEC83	5.0	7.9	1700	166.1	.	.
103	21DEC83	1.9	7.7	1700	166.1	.	.
104	30DEC83	4.5	7.7	1700	166.1	.	.

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
105	01JAN83	10.0	8.0	1400	.	4	.
106	02JAN83	9.5	8.1	1400	.	7	.
107	03JAN83	9.5	7.3	1450	.	3	.
108	04JAN83	10.0	7.7	1400	.	5	.
109	05JAN83	10.0	7.5	1450	.	3	.
110	06JAN83	11.0	7.5	1450	.	7	.
111	07JAN83	10.5	7.6	1425	.	3	.
112	08JAN83	9.9	8.0	1450	.	7	.
113	09JAN83	8.3	7.7	1425	.	4	.
114	10JAN83	9.5	7.8	1450	.	2	.
115	11JAN83	9.0	7.5	1450	.	5	.
116	12JAN83	10.0	7.5	1450	.	4	.
117	13JAN83	11.0	7.9	1400	.	6	.
118	14JAN83	11.0	7.7	1425	.	4	.
119	15JAN83	10.0	7.7	1425	.	3	.
120	16JAN83	9.5	7.9	1425	.	5	.
121	17JAN83	11.0	7.5	1400	.	6	.
122	18JAN83	11.0	7.4	1400	.	4	.
123	19JAN83	10.5	7.6	1400	.	7	.
124	20JAN83	10.5	7.8	1400	.	3	.
125	21JAN83	11.0	7.7	1400	.	5	.
126	22JAN83	9.8	7.9	1425	.	4	.
127	23JAN83	11.5	7.8	1400	.	.	.
128	24JAN83	11.5	7.8	1400	.	.	.
129	25JAN83	12.0	7.8	1350	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
130	26JAN83	11.0	7.8	1350	.	.	.
131	27JAN83	12.0	7.7	1400	.	.	.
132	28JAN83	12.0	7.7	1350	.	.	.
133	29JAN83	11.0	7.7	1500	.	.	.
134	30JAN83	11.0	7.0	1500	.	.	.
135	31JAN83	11.0	7.8	1400	.	.	.
136	01FEB83	12.0	7.7	1400	.	.	.
137	02FEB83	10.5	7.5	1400	.	.	.
138	03FEB83	10.0	7.8	1400	.	.	.
139	04FEB83	10.5	7.4	1450	.	.	.
140	05FEB83	10.5	7.5	1400	.	.	.
141	06FEB83	10.5	7.6	1400	.	.	.
142	07FEB83	10.5	7.7	1400	.	.	.
143	08FEB83	11.0	7.6	1400	.	.	.
144	09FEB83	11.5	7.9	1400	.	.	.
145	10FEB83	10.5	7.6	1450	.	.	.
146	11FEB83	11.0	7.8	1400	.	.	.
147	12FEB83	10.0	7.4	1600	.	.	.
148	13FEB83	9.0	7.8	1600	.	.	.
149	14FEB83	12.0	7.8	1450	.	.	.
150	15FEB83	11.0	7.7	1400	.	.	.
151	16FEB83	11.0	7.9	1400	.	.	.
152	17FEB83	12.0	7.8	1500	.	.	.
153	18FEB83	14.0	8.0	1500	.	.	.
154	19FEB83	14.0	7.9	1550	.	.	.
155	20FEB83	14.0	7.9	1550	.	.	.
156	21FEB83	16.0	7.8	1500	.	.	.
157	22FEB83	16.0	7.8	1530	.	.	.
158	23FEB83	13.0	7.7	1500	.	.	.
159	24FEB83	13.5	7.9	1450	.	.	.
160	25FEB83	13.5	7.7	1500	.	.	.
161	26FEB83	10.3	7.9	1450	.	.	.
162	27FEB83	10.0	7.8	1500	.	.	.
163	28FEB83	15.0	7.9	1500	.	.	.
164	01MAR83	13.0	8.0	1500	.	.	.
165	02MAR83	13.0	7.9	1400	.	.	.
166	03MAR83	12.5	7.9	1400	.	.	.
167	04MAR83	13.0	7.8	1400	.	.	.
168	05MAR83	14.0	7.5	1750	.	.	.
169	06MAR83	13.0	7.9	1700	.	.	.
170	07MAR83	12.0	7.7	1400	.	.	.
171	08MAR83	12.0	7.7	1400	.	.	.
172	09MAR83	12.5	7.8	1400	.	.	.
173	10MAR83	13.0	7.8	1350	.	.	.
174	11MAR83	13.0	7.8	1350	.	.	.
175	12MAR83	13.0	7.8	1500	.	.	.
176	13MAR83	12.8	7.8	1475	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
177	14MAR83	14.0	7.7	1400	.	.	.
178	15MAR83	13.0	7.8	1400	.	.	.
179	16MAR83	12.5	7.6	1400	.	.	.
180	17MAR83	13.0	7.7	1400	.	.	.
181	18MAR83	12.5	7.4	1400	.	.	.
182	20MAR83	14.5	7.4	1500	.	.	.
183	21MAR83	12.7	7.5	1400	.	.	.
184	22MAR83	12.9	7.6	1425	.	.	.
185	23MAR83	13.0	7.7	1400	.	.	.
186	24MAR83	12.5	7.6	1400	.	.	.
187	25MAR83	12.0	7.6	1400	.	.	.
188	27MAR83	13.0	7.8	1500	.	.	.
189	28MAR83	14.0	7.7	1475	.	.	.
190	29MAR83	14.0	7.8	1500	.	.	.
191	30MAR83	13.0	8.0	1475	.	.	.
192	31MAR83	13.5	8.0	1400	.	.	.
193	01APR83	13.0	8.1	1600	.	.	.
194	02APR83	13.0	7.9	1700	.	.	.
195	03APR83	12.0	7.9	1600	.	.	.
196	04APR83	11.5	7.7	1400	.	.	.
197	05APR83	11.6	7.6	1400	.	.	.
198	06APR83	11.7	7.8	1400	.	.	.
199	07APR83	11.5	7.7	1450	.	.	.
200	08APR83	11.8	7.8	1450	.	.	.
201	10APR83	14.0	8.0	1600	.	.	.
202	11APR83	12.7	8.0	1400	.	.	.
203	12APR83	12.9	8.1	1400	.	.	.
204	13APR83	12.4	7.6	1400	.	.	.
205	14APR83	12.2	7.8	1400	.	.	.
206	15APR83	12.3	7.8	1400	.	.	.
207	16APR83	15.0	8.0	1550	.	.	.
208	17APR83	14.0	8.0	1600	.	.	.
209	18APR83	12.3	7.7	1400	.	.	.
210	19APR83	13.8	7.8	1400	.	.	.
211	20APR83	14.3	7.5	1400	.	.	.
212	21APR83	14.2	7.9	1500	.	.	.
213	22APR83	14.3	7.9	1450	.	.	.
214	23APR83	13.0	8.0	1850	.	.	.
215	24APR83	14.0	8.0	1900	.	.	.
216	25APR83	16.0	8.1	1600	.	.	.
217	26APR83	18.0	7.9	1450	.	.	.
218	27APR83	16.0	8.1	1500	.	.	.
219	28APR83	15.0	8.0	1500	.	.	.
220	29APR83	16.0	8.0	1575	.	.	.
221	30APR83	17.0	8.0	1550	.	.	.
222	02MAY83	13.4	8.0	1450	.	.	.
223	03MAY83	13.2	7.8	1400	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
224	04MAY83	18.0	7.9	1575	.	.	.
225	05MAY83	14.1	7.9	1400	.	.	.
226	06MAY83	14.2	8.0	1400	.	.	.
227	09MAY83	14.9	8.0	1400	.	.	.
228	10MAY83	14.9	8.0	1450	.	.	.
229	11MAY83	14.3	8.0	1400	.	.	.
230	12MAY83	18.0	8.0	1500	.	.	.
231	13MAY83	13.9	7.8	1400	.	.	.
232	14MAY83	18.0	7.9	1575	.	.	.
233	15MAY83	16.0	7.9	1550	.	.	.
234	16MAY83	13.9	7.9	1400	.	.	.
235	17MAY83	12.6	7.8	1400	.	.	.
236	18MAY83	11.6	7.9	1400	.	.	.
237	19MAY83	16.0	7.8	1575	.	.	.
238	20MAY83	18.0	7.9	1600	.	.	.
239	21MAY83	14.0	8.0	1500	.	.	.
240	23MAY83	14.7	7.8	1400	.	.	.
241	24MAY83	19.0	7.9	1575	.	.	.
242	25MAY83	15.7	7.9	1400	.	.	.
243	27MAY83	16.3	7.9	1400	.	.	.
244	30MAY83	18.0	8.0	1500	.	.	.
245	31MAY83	16.8	8.0	1400	.	.	.
246	01JUN83	18.0	7.9	1400	.	.	.
247	02JUN83	15.5	8.0	1400	.	.	.
248	03JUN83	15.9	8.0	1400	.	.	.
249	04JUN83	19.0	7.9	1400	.	.	.
250	05JUN83	19.0	7.8	1500	.	.	.
251	06JUN83	15.4	7.9	1400	.	.	.
252	07JUN83	16.8	7.9	1400	.	.	.
253	08JUN83	15.4	7.8	1400	.	.	.
254	09JUN83	21.0	7.8	1500	.	.	.
255	10JUN83	16.1	7.8	1400	.	.	.
256	11JUN83	17.0	8.2	1500	.	.	.
257	12JUN83	18.0	8.0	1500	.	.	.
258	13JUN83	16.0	7.8	1400	.	.	.
259	14JUN83	15.4	7.8	1400	.	.	.
260	15JUN83	15.8	7.8	1400	.	.	.
261	16JUN83	16.5	7.7	1400	.	.	.
262	17JUN83	26.0	8.1	1700	.	.	.
263	18JUN83	19.0	8.0	1500	.	.	.
264	20JUN83	17.8	7.7	1400	.	.	.
265	21JUN83	23.0	8.1	1550	.	.	.
266	22JUN83	17.5	7.9	1400	.	.	.
267	23JUN83	17.8	7.8	1400	.	.	.
268	24JUN83	17.9	7.9	1400	.	.	.
269	27JUN83	17.3	7.8	1450	.	.	.
270	28JUN83	17.3	7.7	1400	.	.	.

RIO BLANCO OIL SHALE COMPANY
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DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
271	29JUN83	17.4	7.9	1400	.	.	.
272	30JUN83	17.6	7.9	1400	.	.	.
273	01JUL83	17.3	7.9	1450	.	.	.
274	02JUL83	18.0	7.9	1500	.	.	.
275	03JUL83	18.0	7.8	1400	.	.	.
276	04JUL83	18.0	7.8	1450	.	.	.
277	05JUL83	17.7	8.0	1400	.	.	.
278	06JUL83	17.7	8.0	1400	.	.	.
279	07JUL83	18.2	8.0	1400	.	.	.
280	08JUL83	17.7	7.8	1450	.	.	.
281	09JUL83	18.0	7.8	1500	.	.	.
282	10JUL83	18.5	8.0	1500	.	.	.
283	11JUL83	17.4	7.9	1450	.	.	.
284	12JUL83	17.5	8.2	1450	.	.	.
285	13JUL83	18.4	8.0	1400	.	.	.
286	14JUL83	18.2	7.9	1450	.	.	.
287	15JUL83	17.7	7.8	1500	.	.	.
288	18JUL83	17.3	8.0	1450	.	.	.
289	19JUL83	17.4	7.9	1500	.	.	.
290	20JUL83	18.0	8.1	1550	.	.	.
291	21JUL83	18.0	8.0	1550	.	.	.
292	22JUL83	18.0	8.1	1575	.	.	.
293	23JUL83	19.0	7.9	1600	.	.	.
294	24JUL83	19.0	8.0	1600	.	.	.
295	25JUL83	17.3	7.9	1450	.	.	.
296	26JUL83	17.8	7.9	1450	.	.	.
297	27JUL83	17.8	7.9	1450	.	.	.
298	28JUL83	18.2	7.9	1400	.	.	.
299	29JUL83	17.8	7.9	1450	.	.	.
300	30JUL83	18.4	7.7	.	.	.	.
301	31JUL83	18.3	7.6	.	.	.	.
302	01AUG83	17.9	7.9	1450	.	.	.
303	02AUG83	17.8	7.8	1400	.	.	.
304	03AUG83	17.9	7.8	1450	.	.	.
305	04AUG83	18.5	7.8	1400	.	.	.
306	05AUG83	19.4	7.7	1400	.	.	.
307	06AUG83	21.0	7.5	1500	.	.	.
308	07AUG83	18.3	7.8	1550	.	.	.
309	08AUG83	19.3	7.8	1400	.	.	.
310	09AUG83	18.9	7.9	1400	.	.	.
311	10AUG83	20.2	8.0	1450	.	.	.
312	11AUG83	19.2	8.0	1450	.	.	.
313	12AUG83	16.7	8.0	1450	.	.	.
314	13AUG83	16.7	8.0	1500	.	.	.
315	14AUG83	17.0	8.1	1500	.	.	.
316	15AUG83	19.4	7.8	1450	.	.	.
317	16AUG83	18.4	8.0	1450	.	.	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
318	17AUG83	19.1	7.9	1400	.	.	.
319	18AUG83	18.0	7.4	1575	.	.	.
320	19AUG83	18.0	7.8	1600	.	.	.
321	22AUG83	18.0	7.6	1575	.	.	.
322	23AUG83	18.1	7.7	1450	.	.	.
323	24AUG83	17.5	7.9	1500	.	.	.
324	25AUG83	18.6	7.9	1500	.	.	.
325	26AUG83	18.6	7.9	1500	.	.	.
326	27AUG83	17.0	7.6	1575	.	.	.
327	29AUG83	18.2	8.0	1500	.	.	.
328	30AUG83	17.7	8.0	1500	.	.	.
329	31AUG83	17.3	7.8	1500	.	.	.
330	01SEP83	17.0	7.7	1575	.	.	.
331	02SEP83	17.8	7.8	1500	.	.	.
332	06SEP83	17.6	7.9	1500	.	.	.
333	07SEP83	17.8	7.7	1450	.	.	.
334	08SEP83	17.2	7.8	1500	.	.	.
335	09SEP83	17.5	7.7	1550	.	.	.
336	10SEP83	17.0	7.7	1575	.	.	.
337	11SEP83	17.0	7.7	1600	.	.	.
338	12SEP83	16.5	7.6	1625	.	.	.
339	13SEP83	16.5	7.7	1600	.	.	.
340	14SEP83	16.5	7.6	1550	.	.	.
341	15SEP83	16.5	7.8	1500	.	.	.
342	16SEP83	17.2	8.0	1550	.	.	.
343	17SEP83	16.8	8.0	1500	.	.	.
344	18SEP83	16.5	7.9	1600	.	.	.
345	19SEP83	16.7	7.7	1550	.	.	.
346	20SEP83	14.8	7.9	1600	.	.	.
347	21SEP83	14.5	7.9	1575	.	.	.
348	22SEP83	15.0	8.0	1550	.	.	.
349	23SEP83	15.8	7.9	1550	.	.	.
350	24SEP83	15.0	7.9	1700	.	.	.
351	25SEP83	14.5	7.9	1550	.	.	.
352	26SEP83	16.8	7.9	1500	.	.	.
353	27SEP83	16.7	7.9	1500	.	.	.
354	28SEP83	16.7	7.9	1450	.	.	.
355	29SEP83	16.0	7.6	1400	.	.	.
356	01OCT83	15.0	7.6	1450	.	.	.
357	02OCT83	14.3	7.7	1500	.	.	.
358	03OCT83	15.4	7.8	1500	.	.	.
359	04OCT83	15.1	7.8	1550	.	.	.
360	05OCT83	15.4	7.7	1500	.	.	.
361	07OCT83	15.0	7.8	1600	.	.	.
362	08OCT83	14.4	7.7	1550	.	.	.
363	09OCT83	15.0	7.8	1600	.	.	.
364	10OCT83	15.0	7.7	1600	.	.	.

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OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
365	11OCT83	15.1	7.8	1600	.	.	.
366	12OCT83	15.1	7.8	1600	.	.	.
367	13OCT83	16.2	7.8	1500	.	.	.
368	14OCT83	15.2	7.8	1550	.	.	.
369	17OCT83	14.4	7.8	1600	.	.	.
370	18OCT83	14.6	7.7	1600	.	.	.
371	19OCT83	14.4	7.7	1600	.	.	.
372	20OCT83	14.0	7.8	1600	.	.	.
373	21OCT83	15.4	7.8	1500	.	.	.
374	22OCT83	14.6	7.9	1600	.	.	.
375	23OCT83	13.7	7.9	1600	.	.	.
376	24OCT83	14.7	7.8	1550	.	.	.
377	25OCT83	14.7	7.8	1500	.	.	.
378	26OCT83	15.7	7.7	1550	.	.	.
379	27OCT83	15.9	7.7	1550	.	.	.
380	28OCT83	16.5	7.8	1550	.	.	.
381	29OCT83	13.6	8.0	1600	.	.	.
382	30OCT83	14.8	7.8	1600	.	.	.
383	31OCT83	15.8	7.7	1550	.	.	.
384	01NOV83	15.4	7.8	1500	.	.	.
385	02NOV83	15.7	7.8	1500	.	.	.
386	03NOV83	15.7	7.8	1550	.	.	.
387	04NOV83	15.1	7.8	1550	.	.	.
388	05NOV83	14.0	8.0	1600	.	.	.
389	07NOV83	14.7	7.8	1550	.	.	.
390	08NOV83	14.2	7.9	1500	.	.	.
391	09NOV83	12.9	7.7	1500	.	.	.
392	10NOV83	13.6	8.0	1600	.	.	.
393	11NOV83	13.4	7.9	1600	.	.	.
394	12NOV83	11.5	7.9	1580	.	.	.
395	13NOV83	14.2	8.0	1595	.	.	.
396	14NOV83	13.9	7.7	1500	.	.	.
397	15NOV83	13.8	7.8	1500	.	.	.
398	16NOV83	13.8	7.8	1500	.	.	.
399	17NOV83	13.3	8.0	1500	.	.	.
400	18NOV83	13.4	7.7	1500	.	.	.
401	19NOV83	13.0	7.9	1600	.	.	.
402	20NOV83	14.0	7.8	1600	.	.	.
403	21NOV83	12.3	7.9	1500	.	.	.
404	22NOV83	12.1	7.9	1500	.	.	.
405	23NOV83	11.7	7.8	1500	.	.	.
406	24NOV83	11.4	7.8	1600	.	.	.
407	25NOV83	11.6	7.9	1600	.	.	.
408	26NOV83	11.2	7.9	1600	.	.	.
409	27NOV83	11.0	7.9	1600	.	.	.
410	28NOV83	12.2	8.0	1550	.	.	.
411	29NOV83	11.2	8.0	1500	.	.	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YCOINJ ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
412	30NOV83	12.5	8.0	1500	.	.	.
413	01DEC83	13.0	7.9	1600	.	.	.
414	02DEC83	13.6	8.0	1500	.	.	.
415	05DEC83	11.3	7.9	1450	.	.	.
416	06DEC83	11.7	7.8	1450	.	.	.
417	07DEC83	11.7	8.0	1500	.	.	.
418	08DEC83	11.8	8.0	1500	.	.	.
419	09DEC83	13.1	8.0	1450	.	.	.
420	15DEC83	12.9	8.0	1500	.	.	.
421	16DEC83	12.3	7.8	1500	.	.	.
422	19DEC83	12.9	7.7	1500	.	.	.
423	20DEC83	11.6	7.9	1450	.	.	.
424	21DEC83	11.0	8.0	1500	.	.	.
425	22DEC83	10.8	7.9	1450	.	.	.
426	23DEC83	.	7.9	1600	.	.	.
427	24DEC83	.	7.9	1600	.	.	.
428	25DEC83	.	7.9	1600	.	.	.
429	26DEC83	.	7.9	1600	.	.	.
430	27DEC83	13.0	.	1600	.	.	.
431	28DEC83	11.8	7.9	1500	.	.	.
432	29DEC83	11.6	7.9	1500	.	.	.
433	30DEC83	11.7	7.9	1500	.	.	.
434	31DEC83	12.5	7.5	1575	.	.	.

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
435	01JAN83	5.5	8.2	1625	.	6	.
436	02JAN83	6.5	8.2	1650	.	7	.
437	03JAN83	6.0	7.6	1700	.	3	.
438	04JAN83	6.0	7.9	1750	.	5	.
439	05JAN83	6.0	7.8	1750	.	4	.
440	06JAN83	7.0	7.8	1800	.	6	.
441	07JAN83	6.0	7.8	1800	.	3	.
442	08JAN83	5.3	7.6	1750	.	7	.
443	09JAN83	6.0	8.1	1725	.	4	.
444	10JAN83	6.0	7.6	1800	.	4	.
445	11JAN83	6.0	7.8	1750	.	5	.
446	12JAN83	6.0	7.8	1700	.	3	.
447	13JAN83	7.0	8.0	1700	.	6	.
448	14JAN83	7.0	7.9	1700	.	2	.
449	15JAN83	6.5	8.0	1750	.	5	.
450	16JAN83	6.8	7.9	1725	.	7	.
451	17JAN83	7.0	7.9	1700	.	4	.
452	18JAN83	7.0	7.8	1700	.	3	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
453	19JAN83	7.5	7.8	1700	.	6	.
454	20JAN83	7.0	7.9	1700	.	2	.
455	21JAN83	7.0	7.9	1700	.	5	.
456	22JAN83	7.2	7.8	1700	.	4	.
457	23JAN83	7.5	7.8	1700	.	.	.
458	24JAN83	7.5	7.8	1700	.	.	.
459	25JAN83	7.5	7.8	1700	.	.	.
460	26JAN83	7.0	7.7	1750	.	.	.
461	27JAN83	9.0	7.9	1700	.	.	.
462	28JAN83	8.5	7.6	1700	.	.	.
463	29JAN83	10.0	8.0	1900	.	.	.
464	30JAN83	9.0	7.8	1800	.	.	.
465	31JAN83	7.5	7.7	1750	.	.	.
466	01FEB83	7.5	7.6	1700	.	.	.
467	02FEB83	7.0	7.7	1700	.	.	.
468	03FEB83	7.0	7.7	1700	.	.	.
469	04FEB83	7.0	7.5	1800	.	.	.
470	05FEB83	7.0	7.5	1800	.	.	.
471	06FEB83	7.0	7.4	1800	.	.	.
472	07FEB83	7.0	7.4	1800	.	.	.
473	08FEB83	7.5	7.8	1750	.	.	.
474	09FEB83	7.5	7.9	1750	.	.	.
475	10FEB83	8.0	7.8	1750	.	.	.
476	11FEB83	8.0	7.6	1800	.	.	.
477	12FEB83	7.0	7.7	2000	.	.	.
478	13FEB83	7.0	7.4	2000	.	.	.
479	14FEB83	7.5	7.7	1800	.	.	.
480	15FEB83	7.0	7.8	1750	.	.	.
481	16FEB83	6.5	7.9	1800	.	.	.
482	17FEB83	9.0	7.7	1825	.	.	.
483	18FEB83	9.0	7.9	1800	.	.	.
484	19FEB83	8.0	7.8	1900	.	.	.
485	20FEB83	9.0	7.9	1870	.	.	.
486	21FEB83	10.0	7.8	1825	.	.	.
487	22FEB83	10.0	7.8	1870	.	.	.
488	23FEB83	7.0	7.5	1800	.	.	.
489	24FEB83	9.0	7.6	1800	.	.	.
490	25FEB83	8.0	7.6	1800	.	.	.
491	26FEB83	6.7	7.7	1825	.	.	.
492	27FEB83	7.0	7.6	1900	.	.	.
493	28FEB83	9.0	7.6	1800	.	.	.
494	01MAR83	9.0	7.7	1825	.	.	.
495	02MAR83	7.0	7.8	1700	.	.	.
496	03MAR83	7.0	7.9	1700	.	.	.
497	04MAR83	6.5	7.7	1700	.	.	.
498	05MAR83	7.0	7.8	1800	.	.	.
499	06MAR83	7.0	7.7	1850	.	.	.

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OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
500	07MAR83	6.5	7.5	1700	.	.	.
501	08MAR83	6.0	7.6	1700	.	.	.
502	09MAR83	6.0	7.6	1700	.	.	.
503	10MAR83	6.5	7.8	1650	.	.	.
504	11MAR83	7.0	7.8	1700	.	.	.
505	12MAR83	8.0	7.8	1800	.	.	.
506	13MAR83	7.7	7.7	1800	.	.	.
507	14MAR83	8.0	7.8	1700	.	.	.
508	15MAR83	7.5	7.7	1700	.	.	.
509	16MAR83	6.5	7.7	1700	.	.	.
510	17MAR83	6.0	7.6	1725	.	.	.
511	18MAR83	6.0	7.5	1700	.	.	.
512	20MAR83	6.5	8.0	1800	.	.	.
513	21MAR83	5.0	7.8	1700	.	.	.
514	22MAR83	5.1	7.8	1650	.	.	.
515	23MAR83	5.5	7.8	1650	.	.	.
516	24MAR83	5.1	7.6	1700	.	.	.
517	25MAR83	4.8	7.5	1650	.	.	.
518	27MAR83	7.0	7.7	1825	.	.	.
519	28MAR83	6.0	7.8	1800	.	.	.
520	29MAR83	7.0	7.8	1800	.	.	.
521	30MAR83	8.0	7.8	1800	.	.	.
522	31MAR83	5.9	8.0	1700	.	.	.
523	01APR83	6.0	7.8	1900	.	.	.
524	02APR83	7.0	7.3	2000	.	.	.
525	03APR83	6.0	7.3	2000	.	.	.
526	04APR83	4.6	7.7	1700	.	.	.
527	05APR83	4.6	7.5	1700	.	.	.
528	06APR83	4.5	7.9	1600	.	.	.
529	07APR83	4.6	7.6	1700	.	.	.
530	08APR83	3.6	7.9	1700	.	.	.
531	10APR83	8.0	7.9	1850	.	.	.
532	11APR83	5.1	8.0	1700	.	.	.
533	12APR83	5.3	8.1	1700	.	.	.
534	13APR83	4.7	7.7	1650	.	.	.
535	14APR83	5.4	7.6	1700	.	.	.
536	15APR83	5.7	7.6	1700	.	.	.
537	16APR83	8.0	7.9	1850	.	.	.
538	17APR83	8.0	8.0	1800	.	.	.
539	18APR83	5.9	7.9	1700	.	.	.
540	19APR83	6.8	7.9	1700	.	.	.
541	20APR83	6.7	7.6	1750	.	.	.
542	21APR83	7.2	7.9	1800	.	.	.
543	22APR83	7.3	7.9	1750	.	.	.
544	23APR83	7.0	7.9	1600	.	.	.
545	24APR83	7.0	7.9	1700	.	.	.
546	25APR83	10.0	7.8	2000	.	.	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
547	26APR83	12.0	8.0	1800	.	.	.
548	27APR83	10.0	7.8	1850	.	.	.
549	28APR83	11.0	7.9	1900	.	.	.
550	29APR83	10.0	7.9	1850	.	.	.
551	30APR83	10.0	7.9	1850	.	.	.
552	02MAY83	8.4	7.8	1700	.	.	.
553	03MAY83	7.8	7.7	1700	.	.	.
554	04MAY83	10.0	7.8	1800	.	.	.
555	05MAY83	9.1	7.8	1700	.	.	.
556	06MAY83	7.9	8.0	1700	.	.	.
557	09MAY83	9.1	7.9	1700	.	.	.
558	10MAY83	9.9	7.9	1700	.	.	.
559	11MAY83	8.9	8.0	1750	.	.	.
560	12MAY83	12.0	7.8	1850	.	.	.
561	13MAY83	8.5	7.8	1700	.	.	.
562	14MAY83	12.0	7.8	1850	.	.	.
563	15MAY83	11.0	7.8	1800	.	.	.
564	16MAY83	8.0	7.8	1700	.	.	.
565	17MAY83	8.0	7.7	1700	.	.	.
566	18MAY83	7.3	7.8	1650	.	.	.
567	19MAY83	10.0	7.4	1900	.	.	.
568	20MAY83	11.0	7.4	1800	.	.	.
569	21MAY83	10.0	7.6	1800	.	.	.
570	23MAY83	9.4	7.7	1600	.	.	.
571	24MAY83	14.0	7.8	1800	.	.	.
572	25MAY83	10.8	7.9	1600	.	.	.
573	27MAY83	10.7	7.8	1700	.	.	.
574	30MAY83	13.0	7.9	1700	.	.	.
575	31MAY83	11.6	7.8	1600	.	.	.
576	01JUN83	13.0	7.9	1500	.	.	.
577	02JUN83	11.8	8.1	1600	.	.	.
578	03JUN83	11.8	8.0	1600	.	.	.
579	04JUN83	13.0	7.9	1600	.	.	.
580	05JUN83	13.0	7.2	1750	.	.	.
581	06JUN83	11.6	7.9	1600	.	.	.
582	07JUN83	14.1	7.9	1650	.	.	.
583	08JUN83	12.5	7.7	1650	.	.	.
584	09JUN83	18.5	7.9	1600	.	.	.
585	10JUN83	11.8	7.9	1650	.	.	.
586	11JUN83	14.0	8.0	1700	.	.	.
587	12JUN83	14.0	7.9	1600	.	.	.
588	13JUN83	13.0	7.8	1600	.	.	.
589	14JUN83	11.9	7.8	1600	.	.	.
590	15JUN83	12.0	7.8	1650	.	.	.
591	16JUN83	12.4	7.8	1600	.	.	.
592	17JUN83	15.0	8.1	1600	.	.	.
593	18JUN83	14.0	7.9	1600	.	.	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
594	20JUN83	13.6	7.9	1600	.	.	.
595	21JUN83	16.0	8.2	1600	.	.	.
596	22JUN83	15.7	7.7	1650	.	.	.
597	23JUN83	14.4	7.6	1650	.	.	.
598	24JUN83	15.4	7.9	1600	.	.	.
599	27JUN83	15.2	7.7	1650	.	.	.
600	28JUN83	15.6	7.8	1650	.	.	.
601	29JUN83	15.2	8.0	1650	.	.	.
602	30JUN83	16.4	7.9	1600	.	.	.
603	01JUL83	15.4	7.9	1650	.	.	.
604	02JUL83	14.0	8.0	1650	.	.	.
605	03JUL83	16.0	7.9	1700	.	.	.
606	04JUL83	13.0	8.0	1700	.	.	.
607	05JUL83	16.4	7.9	1650	.	.	.
608	06JUL83	16.1	7.9	1650	.	.	.
609	07JUL83	16.5	7.9	1650	.	.	.
610	08JUL83	16.4	8.0	1700	.	.	.
611	09JUL83	15.0	7.9	1650	.	.	.
612	10JUL83	18.0	8.0	1750	.	.	.
613	11JUL83	16.5	7.9	1650	.	.	.
614	12JUL83	17.1	8.0	1650	.	.	.
615	13JUL83	17.8	7.9	1600	.	.	.
616	14JUL83	17.8	7.9	1700	.	.	.
617	15JUL83	17.7	7.9	1800	.	.	.
618	18JUL83	17.4	8.0	1700	.	.	.
619	19JUL83	17.6	8.0	1650	.	.	.
620	20JUL83	19.0	7.9	1800	.	.	.
621	21JUL83	19.0	8.0	1800	.	.	.
622	22JUL83	19.5	7.9	1800	.	.	.
623	23JUL83	18.0	8.1	1650	.	.	.
624	24JUL83	17.0	7.9	1800	.	.	.
625	25JUL83	17.0	7.7	1850	.	.	.
626	26JUL83	17.8	7.8	1825	.	.	.
627	27JUL83	17.8	7.8	1850	.	.	.
628	28JUL83	18.3	7.8	1800	.	.	.
629	29JUL83	17.9	7.8	1800	.	.	.
630	30JUL83	18.5	7.4	.	.	.	.
631	31JUL83	18.6	7.4	.	.	.	.
632	01AUG83	18.4	7.8	1800	.	.	.
633	02AUG83	17.8	7.8	1800	.	.	.
634	03AUG83	18.6	7.7	1800	.	.	.
635	04AUG83	18.6	7.8	1900	.	.	.
636	05AUG83	78.6	7.8	1850	.	.	.
637	06AUG83	20.0	7.7	1800	.	.	.
638	07AUG83	21.5	7.6	1800	.	.	.
639	08AUG83	19.2	7.8	1800	.	.	.
640	09AUG83	19.4	7.8	1800	.	.	.

RIO BLANCO OIL SHALE COMPANY
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DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
641	10AUG83	20.0	7.9	1800	.	.	.
642	11AUG83	19.3	8.0	1800	.	.	.
643	12AUG83	19.2	7.9	1800	.	.	.
644	13AUG83	19.3	7.8	1800	.	.	.
645	14AUG83	18.0	7.8	1700	.	.	.
646	15AUG83	19.3	7.9	1800	.	.	.
647	16AUG83	18.9	7.9	1900	.	.	.
648	17AUG83	19.4	7.7	1800	.	.	.
649	18AUG83	19.0	7.2	1800	.	.	.
650	19AUG83	19.0	7.9	1800	.	.	.
651	22AUG83	19.0	7.6	1800	.	.	.
652	23AUG83	18.3	7.6	1700	.	.	.
653	24AUG83	18.3	7.9	1900	.	.	.
654	25AUG83	18.7	7.7	1900	.	.	.
655	26AUG83	18.7	7.6	1900	.	.	.
656	27AUG83	19.0	7.7	1800	.	.	.
657	29AUG83	18.1	7.8	1900	.	.	.
658	30AUG83	17.5	7.8	1900	.	.	.
659	31AUG83	17.5	7.6	1850	.	.	.
660	01SEP83	19.0	7.8	1850	.	.	.
661	02SEP83	17.8	7.9	1900	.	.	.
662	06SEP83	17.2	7.7	1900	.	.	.
663	07SEP83	17.7	7.5	1850	.	.	.
664	08SEP83	17.0	7.8	1900	.	.	.
665	09SEP83	17.0	7.5	1800	.	.	.
666	10SEP83	17.0	7.6	1825	.	.	.
667	11SEP83	17.8	7.7	1900	.	.	.
668	12SEP83	16.5	7.8	1850	.	.	.
669	13SEP83	17.0	7.8	1800	.	.	.
670	14SEP83	17.0	7.7	1800	.	.	.
671	15SEP83	16.0	7.7	1850	.	.	.
672	16SEP83	16.4	8.1	1900	.	.	.
673	17SEP83	16.0	7.6	1800	.	.	.
674	18SEP83	16.0	7.7	1700	.	.	.
675	19SEP83	16.1	7.4	2000	.	.	.
676	20SEP83	14.5	7.8	2000	.	.	.
677	21SEP83	15.5	8.0	1850	.	.	.
678	22SEP83	13.5	8.0	1800	.	.	.
679	23SEP83	13.5	7.9	1950	.	.	.
680	24SEP83	13.5	7.8	1800	.	.	.
681	25SEP83	13.5	8.0	1800	.	.	.
682	26SEP83	13.7	7.8	1950	.	.	.
683	27SEP83	14.2	7.8	1950	.	.	.
684	28SEP83	13.9	7.8	1950	.	.	.
685	29SEP83	14.0	7.4	1700	.	.	.
686	01OCT83	12.0	7.4	1750	.	.	.
687	02OCT83	12.8	7.4	1600	.	.	.

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DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
688	03OCT83	12.0	7.7	1900	.	.	.
689	04OCT83	11.8	7.7	2000	.	.	.
690	05OCT83	11.4	7.5	2000	.	.	.
691	07OCT83	12.0	7.6	2000	.	.	.
692	08OCT83	11.5	7.5	1800	.	.	.
693	09OCT83	12.0	7.6	1900	.	.	.
694	10OCT83	12.0	7.8	1950	.	.	.
695	11OCT83	11.2	7.7	1950	.	.	.
696	12OCT83	10.7	7.6	2000	.	.	.
697	13OCT83	11.3	8.0	1900	.	.	.
698	14OCT83	10.4	7.9	2050	.	.	.
699	17OCT83	10.0	7.6	1950	.	.	.
700	18OCT83	11.0	7.6	1900	.	.	.
701	19OCT83	9.6	7.6	1950	.	.	.
702	20OCT83	8.8	7.8	2050	.	.	.
703	21OCT83	9.2	7.8	1950	.	.	.
704	22OCT83	10.1	7.8	2000	.	.	.
705	23OCT83	10.3	7.9	2000	.	.	.
706	24OCT83	8.7	7.8	1950	.	.	.
707	25OCT83	8.4	7.9	1950	.	.	.
708	26OCT83	15.7	7.8	1950	.	.	.
709	27OCT83	9.8	7.8	1950	.	.	.
710	28OCT83	8.7	7.7	1950	.	.	.
711	29OCT83	9.0	8.1	2000	.	.	.
712	30OCT83	9.4	7.7	1975	.	.	.
713	31OCT83	8.7	7.8	2000	.	.	.
714	01NOV83	8.5	7.8	2000	.	.	.
715	02NOV83	8.8	8.0	2000	.	.	.
716	03NOV83	8.8	7.8	2000	.	.	.
717	04NOV83	8.5	7.8	2000	.	.	.
718	05NOV83	8.5	7.8	2000	.	.	.
719	07NOV83	8.5	7.8	1950	.	.	.
720	08NOV83	7.6	8.0	2000	.	.	.
721	09NOV83	6.7	7.8	2000	.	.	.
722	10NOV83	10.2	7.9	2000	.	.	.
723	11NOV83	9.4	7.9	2000	.	.	.
724	12NOV83	9.5	8.3	1800	.	.	.
725	13NOV83	10.1	7.8	1700	.	.	.
726	14NOV83	6.3	7.7	2000	.	.	.
727	15NOV83	5.7	7.8	2000	.	.	.
728	16NOV83	5.5	7.8	1950	.	.	.
729	17NOV83	5.4	7.8	1900	.	.	.
730	18NOV83	5.2	8.0	1900	.	.	.
731	19NOV83	5.2	7.6	2000	.	.	.
732	20NOV83	8.5	7.8	1950	.	.	.
733	21NOV83	4.6	7.8	1850	.	.	.
734	22NOV83	4.2	7.8	1900	.	.	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YFLDIS ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
735	23NOV83	3.5	7.8	1900	.	.	.
736	24NOV83	6.0	8.1	2000	.	.	.
737	25NOV83	6.4	8.1	2000	.	.	.
738	26NOV83	6.0	8.2	2000	.	.	.
739	27NOV83	6.2	8.2	2000	.	.	.
740	28NOV83	4.6	7.8	1850	.	.	.
741	29NOV83	3.5	7.9	1850	.	.	.
742	30NOV83	4.1	7.9	1850	.	.	.
743	01DEC83	4.0	7.8	2000	.	.	.
744	02DEC83	4.4	7.8	1850	.	.	.
745	05DEC83	4.5	7.8	1850	.	.	.
746	06DEC83	4.6	7.9	1850	.	.	.
747	07DEC83	4.8	8.0	1900	.	.	.
748	08DEC83	5.0	7.7	1800	.	.	.
749	09DEC83	5.4	7.8	1800	.	.	.
750	15DEC83	5.5	7.9	1850	.	.	.
751	16DEC83	5.4	7.7	1850	.	.	.
752	19DEC83	5.7	7.8	1850	.	.	.
753	20DEC83	5.5	7.9	1850	.	.	.
754	21DEC83	5.1	7.9	1900	.	.	.
755	22DEC83	5.0	7.8	1850	.	.	.
756	23DEC83	5.0	8.0	2000	.	.	.
757	24DEC83	2.0	8.1	2000	.	.	.
758	25DEC83	5.0	8.0	2000	.	.	.
759	26DEC83	4.0	8.1	2000	.	.	.
760	27DEC83	4.8	.	2000	.	.	.
761	28DEC83	3.8	7.9	1900	.	.	.
762	29DEC83	4.0	7.9	1850	.	.	.
763	30DEC83	3.9	7.8	1850	.	.	.
764	31DEC83	3.8	7.6	1950	.	.	.

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YJEFFPOND ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
765	05JAN83	16.0	7.4	1450	.	.	.
766	13JAN83	14.5	7.6	1400	.	.	.
767	19JAN83	14.0	7.6	1400	.	.	.
768	24JAN83	14.5	7.5	1400	.	.	.
769	02FEB83	14.0	7.5	1350	.	.	.
770	09FEB83	15.0	7.6	1400	.	.	.
771	16FEB83	15.0	7.7	1450	.	.	.
772	23FEB83	16.0	7.6	1450	.	.	.
773	03MAR83	14.5	7.7	1400	.	.	.
774	09MAR83	15.5	7.6	1350	.	.	.
775	16MAR83	14.5	7.5	1400	.	.	.

RIO BLANCO OIL SHALE COMPANY
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DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YJEFFPOND ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
776	24MAR83	14.7	7.4	1450	.	.	.
777	31MAR83	15.0	7.6	1400	.	.	.
778	07APR83	14.7	7.5	1450	.	.	.
779	11APR83	15.2	7.3	1400	.	.	.
780	21APR83	15.4	7.6	1450	.	.	.
781	27APR83	16.6	7.8	1400	.	.	.
782	05MAY83	14.7	7.7	1400	.	.	.
783	11MAY83	14.3	7.7	1400	.	.	.
784	17MAY83	13.6	7.7	1300	.	.	.
785	25MAY83	16.5	7.7	1400	.	.	.
786	02JUN83	14.4	7.8	1400	.	.	.
787	08JUN83	15.4	7.5	1400	.	.	.
788	16JUN83	16.1	7.8	1375	.	.	.
789	22JUN83	16.5	7.5	1400	.	.	.
790	29JUN83	16.6	7.7	1400	.	.	.
791	07JUL83	16.7	7.7	1450	.	.	.
792	12JUL83	14.5	7.8	1550	.	.	.
793	19JUL83	16.1	8.0	1550	.	.	.
794	28JUL83	16.7	7.6	1450	.	.	.
795	03AUG83	16.7	7.7	1500	.	.	.
796	10AUG83	16.8	7.8	1500	.	.	.
797	17AUG83	16.7	7.6	1400	.	.	.
798	24AUG83	16.4	7.5	1500	.	.	.
799	31AUG83	16.5	7.7	1550	.	.	.
800	08SEP83	16.4	7.5	1500	.	.	.
801	15SEP83	16.4	7.7	1450	.	.	.
802	20SEP83	14.8	7.6	1600	.	.	.
803	28SEP83	15.7	7.8	1500	.	.	.
804	05OCT83	15.2	7.6	1500	.	.	.
805	13OCT83	15.4	7.5	1500	.	.	.
806	20OCT83	15.7	7.7	1500	.	.	.
807	26OCT83	15.8	7.5	1500	.	.	.
808	02NOV83	15.3	7.7	1550	.	.	.
809	09NOV83	14.5	7.6	1500	.	.	.
810	17NOV83	14.6	7.6	1550	.	.	.
811	23NOV83	13.7	7.7	1500	.	.	.
812	30NOV83	14.4	7.7	1500	.	.	.
813	07DEC83	14.2	7.7	1500	.	.	.
814	16DEC83	14.3	7.8	1450	.	.	.
815	21DEC83	13.4	7.8	1500	.	.	.
816	28DEC83	13.7	7.7	1500	.	.	.

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---------- REPORT YEAR=1983 TYPE=DAMS STATION=YMET3 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
817	05JAN83	10.0	7.7	1400	.	.	.
818	13JAN83	11.0	7.5	1350	.	.	.
819	19JAN83	10.0	7.6	1400	203.3	.	.
820	24JAN83	8.0	7.7	1350	203.3	.	.
821	03FEB83	8.5	7.6	1350	205.5	.	.
822	09FEB83	9.5	7.5	1400	189.9	.	.
823	16FEB83	10.0	7.6	1450	208.2	.	.
824	23FEB83	12.0	7.5	1300	252.2	.	.
825	03MAR83	10.0	7.5	1250	276.9	.	.
826	09MAR83	10.5	7.4	1050	372.0	.	.
827	16MAR83	13.0	7.5	1400	307.9	.	.
828	24MAR83	9.6	7.5	1400	273.8	.	.
829	31MAR83	10.0	7.5	1400	317.6	.	.
830	07APR83	9.7	7.1	1450	305.2	.	.
831	11APR83	9.6	7.6	1400	289.0	.	.
832	21APR83	17.0	7.6	1100	1206.3	.	.
833	27APR83	7.7	8.2	1200	2640.7	.	.
834	05MAY83	13.3	8.0	1250	.	.	.
835	11MAY83	7.0	8.0	1200	.	.	.
836	17MAY83	8.4	8.0	1150	.	.	.
837	25MAY83	14.4	7.9	1200	.	.	.
838	02JUN83	9.6	8.0	1400	.	.	.
839	08JUN83	13.1	7.9	1300	.	.	.
840	16JUN83	17.5	7.8	1250	.	.	.
841	23JUN83	16.6	7.9	1150	.	.	.
842	29JUN83	15.6	8.0	1200	.	.	.
843	07JUL83	21.2	7.8	1200	.	.	.
844	12JUL83	21.5	8.1	1100	.	.	.
845	19JUL83	14.1	7.9	1450	.	.	.
846	28JUL83	18.2	7.7	1425	.	.	.
847	03AUG83	15.4	7.9	1450	.	.	.
848	11AUG83	16.6	7.9	1500	.	.	.
849	17AUG83	17.6	7.7	1400	1034.9	.	.
850	24AUG83	16.9	7.8	1500	1002.1	.	.
851	31AUG83	16.0	7.8	1550	951.9	.	.
852	08SEP83	17.7	7.7	1500	838.3	.	.
853	15SEP83	15.7	7.8	1500	856.3	.	.
854	20SEP83	11.2	7.6	1600	939.8	.	.
855	28SEP83	14.7	7.6	1550	845.6	.	.
856	06OCT83	14.4	7.6	1650	873.8	.	.
857	13OCT83	10.4	7.5	1600	903.0	.	.
858	20OCT83	13.3	7.8	1600	795.2	.	.
859	26OCT83	13.3	7.6	1550	800.6	.	.
860	02NOV83	12.7	7.5	1650	797.5	.	.
861	08NOV83	7.7	7.6	1650	843.7	.	.
862	17NOV83	10.4	7.8	1600	803.4	.	.
863	23NOV83	8.3	8.0	1550	771.9	.	.

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DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YMET3 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
864	30NOV83	8.7	7.7	1550	780.9	.	.
865	07DEC83	9.4	7.7	1550	780.9	.	.
866	16DEC83	8.6	7.8	1500	772.0	.	.
867	21DEC83	7.5	7.5	1500	754.0	.	.
868	30DEC83	9.0	7.7	1550	736.1	.	.

---------- REPORT YEAR=1983 TYPE=DAMS STATION=YSEOFL ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
869	24JAN83	1.5	7.4	1800	103.2	.	.
870	14FEB83	4.7	7.6	1500	166.1	.	.
871	16MAR83	10.5	7.9	1700	143.6	.	.
872	11APR83	6.8	7.5	1800	179.5	.	.
873	25MAY83	19.5	7.7	1300	.	.	.
874	23JUN83	13.5	7.7	1300	.	.	.
875	12JUL83	16.0	7.6	1600	.	.	.
876	24AUG83	13.4	7.6	1800	1090.6	.	.
877	20SEP83	8.8	7.6	1900	933.5	.	.
878	13OCT83	8.1	7.5	1950	888.6	.	.
879	23NOV83	8.1	7.9	2050	682.2	.	.
880	21DEC83	6.3	7.6	2100	623.8	.	.

---------- REPORT YEAR=1983 TYPE=SEEP STATION=SPG-MILL ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
881	21JAN83	9.0	7.2	1650	.	.	.
882	11APR83	9.5	7.1	1600	0	.	.
883	12JUL83	26.2	7.9	1600	.	.	.
884	13OCT83	14.6	7.6	1500	.	.	.

---------- REPORT YEAR=1983 TYPE=SEEP STATION=SPG-14 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
885	11APR83	6.9	7.2	1750	17.5	.	.
886	12JUL83	16.0	7.6	1550	8.0	.	.
887	13OCT83	10.4	7.3	1450	35.0	.	.

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DEVELOPMENT ACTIVITIES MONITORING DATA

---------- REPORT YEAR=1983 TYPE=SEEP STATION=SPG-20 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
888	20JAN83	1.0	7.8	1100	70	.	.
889	15APR83	8.3	7.2	1250	45	.	.
890	12JUL83	17.5	8.0	1700	500	.	.
891	14OCT83	5.5	7.8	1500	100	.	.

---------- REPORT YEAR=1983 TYPE=SEEP STATION=SPG-3 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
892	12JUL83	15.6	8.6	1200	125	.	.
893	14OCT83	7.5	7.8	1600	20	.	.

---------- REPORT YEAR=1983 TYPE=SEEP STATION=SPG-4 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
894	20JAN83	4.0	7.6	1100	2	.	.
895	11APR83	10.4	7.2	1100	4	.	.
896	12JUL83	21.0	8.4	1300	.	.	.
897	14OCT83	6.5	8.2	1400	40	.	.

---------- REPORT YEAR=1983 TYPE=SEEP STATION=SPG-5 ----------

OBS	DATE	TEMP	PH	COND	FLOW	TSS	PRESSURE
898	21JAN83	3.5	7.5	1350	.	.	.
899	11APR83	8.3	8.2	1400	20	.	.
900	12JUL83	25.5	7.8	1150	15	.	.
901	13OCT83	11.5	7.8	1700	30	.	.

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---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S22 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
1	06JAN83	58.4	.	.	.
2	08APR83	58.1	.	.	.
3	14JUL83	53.4	.	.	.
4	05OCT83	53.2	8	7.4	2400

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S24 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
5	06JAN83	8.9	.	.	.
6	08APR83	8.8	.	.	.
7	14JUL83	9.8	.	.	.
8	05OCT83	10.8	9.2	7.2	1800

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S27A ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
9	14JUL83	16.7	.	.	.
10	05OCT83	16.5	.	.	.

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S27S ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
11	05JAN83	26.5	10.0	7.2	1500
12	13JAN83	26.4	.	.	.
13	19JAN83	26.4	.	.	.
14	26JAN83	26.4	.	.	.
15	03FEB83	26.3	.	.	.
16	09FEB83	26.2	.	.	.
17	16FEB83	26.2	.	.	.
18	23FEB83	26.2	.	.	.
19	03MAR83	26.1	.	.	.
20	09MAR83	26.1	.	.	.
21	16MAR83	26.0	.	.	.
22	24MAR83	26.0	.	.	.
23	31MAR83	25.9	.	.	.
24	05APR83	26.0	8.7	7.4	1450
25	13APR83	25.5	.	.	.
26	21APR83	25.6	.	.	.
27	27APR83	25.5	.	.	.
28	05MAY83	25.2	.	.	.
29	11MAY83	24.9	.	.	.

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---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S27S ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
30	17MAY83	24.3	.	.	.
31	25MAY83	23.2	.	.	.
32	02JUN83	14.7	.	.	.
33	08JUN83	20.3	.	.	.
34	16JUN83	21.6	.	.	.
35	23JUN83	21.7	.	.	.
36	29JUN83	21.6	.	.	.
37	07JUL83	19.3	.	.	.
38	13JUL83	18.4	10.4	7.2	1700
39	19JUL83	16.0	.	.	.
40	28JUL83	15.2	.	.	.
41	03AUG83	13.7	.	.	.
42	10AUG83	13.5	.	.	.
43	17AUG83	13.1	.	.	.
44	24AUG83	13.1	.	.	.
45	31AUG83	13.4	.	.	.
46	08SEP83	13.7	.	.	.
47	15SEP83	14.1	.	.	.
48	20SEP83	14.8	.	.	.
49	28SEP83	15.6	.	.	.
50	05OCT83	16.0	10.1	7.3	1550
51	13OCT83	16.1	.	.	.
52	20OCT83	16.5	.	.	.
53	26OCT83	16.1	.	.	.
54	02NOV83	17.3	.	.	.
55	08NOV83	17.4	.	.	.
56	17NOV83	17.6	.	.	.
57	23NOV83	17.8	.	.	.
58	30NOV83	18.0	.	.	.
59	07DEC83	18.1	.	.	.
60	16DEC83	18.3	.	.	.
61	21DEC83	18.4	.	.	.
62	30DEC83	18.5	.	.	.

--------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28AD ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
63	06JAN83	14.8	.	.	.
64	08APR83	14.5	.	.	.
65	14JUL83	5.4	.	.	.
66	05OCT83	6.3	9.8	7.2	2800

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--------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28AS ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
67	14JUL83	4.6	.	.	.
68	05OCT83	5.5	.	.	.

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28D ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
69	06JAN83	18.0	.	.	.
70	08APR83	18.0	.	.	.
71	14JUL83	7.7	.	.	.
72	05OCT83	9.0	9.2	7.2	3000

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S28S ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
73	14JUL83	7.5	.	.	.
74	05OCT83	8.5	9.5	7.2	1800

--------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S29AD ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
75	04OCT83	20.5	8.3	7.2	2400

--------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S29AS ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
76	04OCT83	21.1	8.4	7.1	5300

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S29D ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
77	06JAN83	24.4	.	.	.
78	08APR83	21.6	.	.	.
79	12JUL83	12.3	.	.	.
80	04OCT83	15.5	8.4	7.3	6100

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---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S29S ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
81	06JAN83	24.2	.	.	.
82	08APR83	22.1	.	.	.
83	12JUL83	14.0	.	.	.
84	04OCT83	16.1	7.8	7.2	5000

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S30 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
85	04OCT83	15.7	8.7	7.4	2400

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S30A ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
86	04OCT83	15.4	9.1	7.5	2450

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S7 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
87	05JAN83	26.6	.	.	.
88	13JAN83	25.8	.	.	.
89	19JAN83	25.4	.	.	.
90	26JAN83	24.4	.	.	.
91	03FEB83	24.2	.	.	.
92	09FEB83	23.6	.	.	.
93	16FEB83	23.4	.	.	.
94	23FEB83	23.8	.	.	.
95	03MAR83	23.5	.	.	.
96	09MAR83	24.4	.	.	.
97	16MAR83	23.8	.	.	.
98	24MAR83	23.7	.	.	.
99	31MAR83	23.4	.	.	.
100	07APR83	23.2	.	.	.
101	13APR83	22.7	.	.	.
102	21APR83	21.7	.	.	.
103	27APR83	20.9	.	.	.
104	05MAY83	18.3	.	.	.
105	11MAY83	16.4	.	.	.
106	17MAY83	14.2	.	.	.
107	25MAY83	13.6	.	.	.
108	02JUN83	14.1	.	.	.
109	08JUN83	14.6	.	.	.

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---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S7 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
110	16JUN83	15.2	.	.	.
111	23JUN83	15.5	.	.	.
112	29JUN83	15.8	.	.	.
113	07JUL83	16.2	.	.	.
114	13JUL83	16.5	.	.	.
115	19JUL83	16.9	.	.	.
116	28JUL83	17.9	.	.	.
117	03AUG83	19.0	.	.	.
118	10AUG83	19.8	.	.	.
119	17AUG83	20.4	.	.	.
120	24AUG83	20.9	.	.	.
121	31AUG83	21.7	.	.	.
122	08SEP83	22.1	.	.	.
123	15SEP83	22.5	.	.	.
124	20SEP83	22.7	.	.	.
125	28SEP83	23.0	.	.	.
126	05OCT83	23.3	10.1	7	1450
127	13OCT83	23.4	.	.	.
128	20OCT83	23.6	.	.	.
129	26OCT83	23.7	.	.	.
130	02NOV83	23.8	.	.	.
131	08NOV83	23.9	.	.	.
132	17NOV83	23.4	.	.	.
133	23NOV83	22.4	.	.	.
134	30NOV83	22.2	.	.	.
135	07DEC83	22.1	.	.	.
136	16DEC83	23.5	.	.	.
137	21DEC83	23.5	.	.	.
138	30DEC83	22.3	.	.	.

---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S8 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
139	05JAN83	42.7	.	.	.
140	13JAN83	42.8	.	.	.
141	19JAN83	42.9	.	.	.
142	26JAN83	42.9	.	.	.
143	03FEB83	42.9	.	.	.
144	09FEB83	42.8	.	.	.
145	16FEB83	42.8	.	.	.
146	23FEB83	42.9	.	.	.
147	03MAR83	42.9	.	.	.
148	09MAR83	42.8	.	.	.
149	16MAR83	42.5	.	.	.
150	24MAR83	42.2	.	.	.

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---------- REPORT YEAR=1983 TYPE=ALLUVIAL AQUIFER STATION=GS-S8 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
151	31MAR83	41.9	.	.	.
152	06APR83	41.0	.	.	.
153	13APR83	38.7	.	.	.
154	21APR83	35.4	.	.	.
155	27APR83	33.1	.	.	.
156	05MAY83	31.3	.	.	.
157	11MAY83	28.3	.	.	.
158	17MAY83	26.7	.	.	.
159	25MAY83	24.1	.	.	.
160	02JUN83	21.9	.	.	.
161	08JUN83	20.9	.	.	.
162	16JUN83	21.5	.	.	.
163	23JUN83	26.5	.	.	.
164	29JUN83	23.4	.	.	.
165	07JUL83	24.6	.	.	.
166	12JUL83	25.1	.	.	.
167	19JUL83	25.5	.	.	.
168	28JUL83	26.3	.	.	.
169	03AUG83	27.1	.	.	.
170	11AUG83	28.0	.	.	.
171	17AUG83	28.7	.	.	.
172	24AUG83	29.3	.	.	.
173	31AUG83	29.9	.	.	.
174	08SEP83	30.5	.	.	.
175	15SEP83	31.2	.	.	.
176	20SEP83	31.8	.	.	.
177	28SEP83	32.7	.	.	.
178	05OCT83	33.5	9.3	7.4	1100
179	13OCT83	34.3	.	.	.
180	20OCT83	34.9	.	.	.
181	26OCT83	35.3	.	.	.
182	02NOV83	35.6	.	.	.
183	08NOV83	36.1	.	.	.
184	17NOV83	36.4	.	.	.
185	23NOV83	36.5	.	.	.
186	30NOV83	36.7	.	.	.
187	07DEC83	36.8	.	.	.
188	16DEC83	37.0	.	.	.
189	21DEC83	37.2	.	.	.

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---------- REPORT YEAR=1983 TYPE=LOWER AQUIFER STATION=GS-15L ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
190	11JAN83	369.0	14.5	.	1700
191	15FEB83	.	.	7.7	.
192	06APR83	368.4	15.3	8.1	3200
193	12JUL83	367.2	15.1	8.5	2600
194	26SEP83	365.9	.	.	.
195	12OCT83	365.9	15.4	7.7	4550

---------- REPORT YEAR=1983 TYPE=LOWER AQUIFER STATION=GS-17L ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
196	19APR83	370.4	.	.	.
197	14JUL83	369.5	16.4	9.8	1750
198	27SEP83	368.4	.	.	.

---------- REPORT YEAR=1983 TYPE=LOWER AQUIFER STATION=GS-19L ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
199	21APR83	135.2	.	.	.
200	20SEP83	133.4	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=AM-2AU ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
201	18APR83	380.3	.	.	.
202	26SEP83	378.6	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=AM-3U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
203	12JAN83	34.6	12.0	7.6	1050
204	06APR83	33.8	10.9	7.8	1050
205	12JUL83	27.0	11.6	8.0	1000
206	20SEP83	28.2	.	.	.
207	13OCT83	28.4	11.3	7.9	950

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-701U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
208	19APR83	123.3	.	.	.
209	27SEP83	83.6	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-702U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
210	05JAN83	43.9	.	.	.
211	11JAN83	43.9	14.5	7.7	1450
212	19JAN83	43.5	.	.	.
213	26JAN83	43.2	.	.	.
214	04FEB83	43.3	.	.	.
215	09FEB83	43.3	.	.	.
216	16FEB83	42.8	.	.	.
217	23FEB83	42.7	.	.	.
218	03MAR83	42.2	.	.	.
219	09MAR83	42.6	.	.	.
220	16MAR83	42.3	.	.	.
221	24MAR83	41.5	.	.	.
222	31MAR83	40.9	.	.	.
223	05APR83	39.9	12.5	7.7	1350
224	13APR83	43.1	.	.	.
225	21APR83	42.1	.	.	.
226	27APR83	41.5	.	.	.
227	05MAY83	40.6	.	.	.
228	11MAY83	39.9	.	.	.
229	17MAY83	40.5	.	.	.
230	25MAY83	39.0	.	.	.
231	02JUN83	39.7	.	.	.
232	08JUN83	36.8	.	.	.
233	16JUN83	37.6	.	.	.
234	23JUN83	36.7	.	.	.
235	29JUN83	34.4	.	.	.
236	07JUL83	32.0	.	.	.
237	13JUL83	31.3	14.5	7.1	1300
238	19JUL83	30.3	.	.	.
239	28JUL83	29.3	.	.	.
240	03AUG83	28.3	.	.	.
241	10AUG83	29.3	.	.	.
242	17AUG83	27.9	.	.	.
243	24AUG83	27.4	.	.	.
244	31AUG83	26.8	.	.	.
245	08SEP83	26.4	.	.	.
246	15SEP83	26.4	.	.	.
247	20SEP83	26.2	.	.	.
248	28SEP83	25.7	.	.	.

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-702U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
249	05OCT83	25.8	.	.	.
250	13OCT83	25.4	14.7	7.5	1450
251	20OCT83	24.7	.	.	.
252	26OCT83	24.5	.	.	.
253	02NOV83	24.6	.	.	.
254	08NOV83	25.1	.	.	.
255	17NOV83	24.7	.	.	.
256	23NOV83	24.6	.	.	.
257	30NOV83	24.7	.	.	.
258	07DEC83	23.8	.	.	.
259	16DEC83	23.7	.	.	.
260	21DEC83	27.9	.	.	.
261	30DEC83	26.1	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-705AU ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
262	05JAN83	253.4	.	.	.
263	12JAN83	253.2	12.5	7.4	1250
264	19JAN83	252.9	.	.	.
265	26JAN83	253.1	.	.	.
266	03FEB83	253.1	.	.	.
267	09FEB83	253.1	.	.	.
268	16FEB83	252.9	.	.	.
269	23FEB83	253.1	.	.	.
270	03MAR83	252.8	.	.	.
271	09MAR83	252.6	.	.	.
272	16MAR83	252.4	.	.	.
273	24MAR83	252.2	.	.	.
274	31MAR83	252.0	.	.	.
275	05APR83	252.2	10.8	7.6	1200
276	13APR83	251.8	.	.	.
277	21APR83	252.0	.	.	.
278	27APR83	251.8	.	.	.
279	05MAY83	251.9	.	.	.
280	11MAY83	250.8	.	.	.
281	17MAY83	249.9	.	.	.
282	25MAY83	251.5	.	.	.
283	02JUN83	246.4	.	.	.
284	08JUN83	242.2	.	.	.
285	16JUN83	236.3	.	.	.
286	23JUN83	230.3	.	.	.
287	29JUN83	224.1	.	.	.
288	07JUL83	219.4	.	.	.
289	12JUL83	216.7	10.5	7.0	1300

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-705AU ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
290	19JUL83	214.7	.	.	.
291	28JUL83	211.4	.	.	.
292	03AUG83	210.7	.	.	.
293	11AUG83	208.4	.	.	.
294	17AUG83	206.1	.	.	.
295	24AUG83	204.6	.	.	.
296	31AUG83	203.4	.	.	.
297	08SEP83	201.1	.	.	.
298	15SEP83	199.5	.	.	.
299	20SEP83	199.2	.	.	.
300	28SEP83	198.1	.	.	.
301	05OCT83	196.9	.	.	.
302	13OCT83	196.5	10.1	6.9	1200
303	20OCT83	197.3	.	.	.
304	26OCT83	197.3	.	.	.
305	02NOV83	198.4	.	.	.
306	08NOV83	198.9	.	.	.
307	17NOV83	199.0	.	.	.
308	23NOV83	200.3	.	.	.
309	30NOV83	201.0	.	.	.
310	07DEC83	201.2	.	.	.
311	16DEC83	203.2	.	.	.
312	21DEC83	203.3	.	.	.
313	30DEC83	205.4	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-707U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
314	19APR83	202.5	.	.	.
315	20SEP83	208.7	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-708U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
316	21APR83	64.2	.	.	.
317	14JUL83	42.5	10.8	8	1200
318	20SEP83	52.5	.	.	.

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---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-709U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
319	05JAN83	264.5	.	.	.
320	11JAN83	263.7	11.0	7.0	1500
321	19JAN83	264.9	.	.	.
322	26JAN83	265.2	.	.	.
323	03FEB83	266.2	.	.	.
324	09FEB83	264.2	.	.	.
325	16FEB83	261.8	.	.	.
326	23FEB83	263.7	.	.	.
327	03MAR83	270.8	.	.	.
328	09MAR83	263.9	.	.	.
329	16MAR83	260.0	.	.	.
330	24MAR83	258.9	.	.	.
331	31MAR83	259.9	.	.	.
332	05APR83	261.9	10.5	7.1	1600
333	13APR83	262.3	.	.	.
334	21APR83	262.3	.	.	.
335	27APR83	261.8	.	.	.
336	05MAY83	256.7	.	.	.
337	11MAY83	251.7	.	.	.
338	17MAY83	248.6	.	.	.
339	25MAY83	236.4	.	.	.
340	02JUN83	230.3	.	.	.
341	08JUN83	232.9	.	.	.
342	16JUN83	232.9	.	.	.
343	23JUN83	230.7	.	.	.
344	29JUN83	226.6	.	.	.
345	07JUL83	225.8	.	.	.
346	13JUL83	225.1	11.5	6.9	1600
347	19JUL83	224.3	.	.	.
348	28JUL83	224.1	.	.	.
349	03AUG83	222.5	.	.	.
350	10AUG83	222.5	.	.	.
351	17AUG83	220.6	.	.	.
352	24AUG83	223.9	.	.	.
353	31AUG83	223.8	.	.	.
354	08SEP83	223.7	.	.	.
355	15SEP83	223.6	.	.	.
356	20SEP83	223.8	.	.	.
357	28SEP83	223.9	.	.	.
358	05OCT83	224.3	.	.	.
359	13OCT83	224.3	11.2	7.3	1500
360	20OCT83	225.0	.	.	.
361	26OCT83	225.2	.	.	.
362	02NOV83	225.6	.	.	.
363	08NOV83	225.5	.	.	.
364	17NOV83	225.4	.	.	.
365	23NOV83	225.9	.	.	.

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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=CE-709L ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
366	30NOV83	226.0	.	.	.
367	07DEC83	226.3	.	.	.
368	16DEC83	226.4	.	.	.
369	21DEC83	226.2	.	.	.
370	30DEC83	225.9	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D1U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
371	05JAN83	575.2	.	.	.
372	12JAN83	575.8	15.0	7.2	1350
373	19JAN83	575.5	.	.	.
374	27JAN83	570.3	.	.	.
375	04FEB83	570.8	.	.	.
376	08FEB83	571.3	.	.	.
377	16FEB83	570.7	.	.	.
378	23FEB83	571.1	.	.	.
379	03MAR83	570.6	.	.	.
380	09MAR83	570.3	.	.	.
381	16MAR83	570.1	.	.	.
382	24MAR83	569.5	.	.	.
383	31MAR83	568.7	.	.	.
384	04APR83	567.6	14.4	7.4	1300
385	13APR83	568.0	.	.	.
386	21APR83	567.2	.	.	.
387	27APR83	567.1	.	.	.
388	05MAY83	566.1	.	.	.
389	11MAY83	563.0	.	.	.
390	17MAY83	563.4	.	.	.
391	25MAY83	567.9	.	.	.
392	02JUN83	564.1	.	.	.
393	08JUN83	556.9	.	.	.
394	16JUN83	557.7	.	.	.
395	22JUN83	554.9	.	.	.
396	29JUN83	557.1	.	.	.
397	07JUL83	552.9	.	.	.
398	13JUL83	550.1	14.5	6.9	1200
399	19JUL83	549.5	.	.	.
400	29JUL83	549.9	.	.	.
401	04AUG83	548.8	.	.	.
402	10AUG83	533.2	.	.	.
403	17AUG83	531.9	.	.	.
404	24AUG83	530.8	.	.	.
405	31AUG83	530.5	.	.	.
406	08SEP83	530.3	.	.	.

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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D10 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
407	15SEP83	529.9	.	.	.
408	20SEP83	529.9	.	.	.
409	28SEP83	528.8	.	.	.
410	05OCT83	528.4	.	.	.
411	13OCT83	528.0	11.4	6.9	1450
412	22DEC83	565.1	.	.	.
413	28DEC83	558.4	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D30 ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
414	05JAN83	624.9	.	.	.
415	11JAN83	627.3	15.0	7.3	1425
416	19JAN83	632.1	.	.	.
417	27JAN83	624.5	.	.	.
418	04FEB83	622.9	.	.	.
419	07FEB83	622.9	.	.	.
420	16FEB83	622.3	.	.	.
421	23FEB83	622.2	.	.	.
422	03MAR83	622.0	.	.	.
423	09MAR83	621.5	.	.	.
424	16MAR83	620.9	.	.	.
425	24MAR83	621.8	.	.	.
426	31MAR83	620.5	.	.	.
427	05APR83	621.6	14.7	7.6	1300
428	13APR83	621.0	.	.	.
429	21APR83	620.4	.	.	.
430	27APR83	620.2	.	.	.
431	05MAY83	619.9	.	.	.
432	11MAY83	619.9	.	.	.
433	17MAY83	619.8	.	.	.
434	25MAY83	618.2	.	.	.
435	02JUN83	617.0	.	.	.
436	08JUN83	616.4	.	.	.
437	16JUN83	615.9	.	.	.
438	22JUN83	615.5	.	.	.
439	29JUN83	614.7	.	.	.
440	07JUL83	613.6	.	.	.
441	13JUL83	612.6	15.2	7.5	1700
442	19JUL83	612.1	.	.	.
443	28JUL83	609.8	.	.	.
444	03AUG83	607.1	.	.	.
445	10AUG83	605.3	.	.	.
446	17AUG83	604.8	.	.	.
447	24AUG83	604.5	.	.	.

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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D5U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
448	31AUG83	604.6	.	.	.
449	08SEP83	604.8	.	.	.
450	15SEP83	605.0	.	.	.
451	20SEP83	605.1	.	.	.
452	28SEP83	604.5	.	.	.
453	05OCT83	604.4	.	.	.
454	14OCT83	603.5	14.8	7.2	2200
455	20OCT83	603.8	.	.	.
456	26OCT83	603.8	.	.	.
457	02NOV83	603.5	.	.	.
458	09NOV83	603.9	.	.	.
459	17NOV83	603.6	.	.	.
460	23NOV83	604.2	.	.	.
461	30NOV83	603.9	.	.	.
462	07DEC83	603.9	.	.	.
463	16DEC83	604.1	.	.	.
464	21DEC83	604.0	.	.	.
465	28DEC83	603.9	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D6U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
466	13JAN83	339.3	.	.	.
467	14FEB83	337.8	.	.	.
468	16MAR83	336.9	.	.	.
469	07APR83	336.4	.	.	.
470	25MAY83	333.7	.	.	.
471	23JUN83	316.9	.	.	.
472	19JUL83	306.5	.	.	.
473	24AUG83	304.1	.	.	.
474	20SEP83	304.8	.	.	.
475	20OCT83	305.8	.	.	.
476	23NOV83	306.0	.	.	.
477	21DEC83	307.3	.	.	.

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-D8U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
478	13JAN83	213.7	.	.	.
479	14FEB83	212.5	.	.	.
480	16MAR83	212.1	.	.	.
481	07APR83	211.9	.	.	.
482	25MAY83	206.5	.	.	.
483	23JUN83	186.7	.	.	.
484	19JUL83	169.9	.	.	.
485	24AUG83	166.1	.	.	.
486	20SEP83	165.9	.	.	.
487	20OCT83	168.0	.	.	.
488	23NOV83	171.7	.	.	.
489	21DEC83	175.5	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-MDP2CU ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
490	05JAN83	590.4	.	.	.
491	11JAN83	589.5	16.0	7.7	1500
492	19JAN83	588.5	.	.	.
493	27JAN83	590.3	.	.	.
494	04FEB83	591.4	.	.	.
495	07FEB83	591.7	.	.	.
496	16FEB83	591.3	.	.	.
497	23FEB83	589.1	.	.	.
498	03MAR83	589.7	.	.	.
499	09MAR83	587.7	.	.	.
500	16MAR83	586.3	.	.	.
501	24MAR83	586.6	.	.	.
502	31MAR83	591.9	.	.	.
503	04APR83	587.2	15.1	7.7	1700
504	13APR83	585.8	.	.	.
505	21APR83	586.3	.	.	.
506	27APR83	587.6	.	.	.
507	05MAY83	587.0	.	.	.
508	11MAY83	590.2	.	.	.
509	17MAY83	590.1	.	.	.
510	25MAY83	590.2	.	.	.
511	02JUN83	577.1	.	.	.
512	08JUN83	574.9	.	.	.
513	16JUN83	575.1	.	.	.
514	22JUN83	569.7	.	.	.
515	29JUN83	560.8	.	.	.
516	07JUL83	551.1	.	.	.
517	13JUL83	546.4	16.0	7.1	1750
518	19JUL83	541.7	.	.	.

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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-MDF2CC ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
519	28JUL83	540.4	.	.	.
520	03AUG83	536.1	.	.	.
521	10AUG83	533.2	.	.	.
522	17AUG83	532.2	.	.	.
523	24AUG83	531.0	.	.	.
524	31AUG83	528.7	.	.	.
525	08SEP83	529.5	.	.	.
526	15SEP83	526.9	.	.	.
527	20SEP83	529.9	.	.	.
528	28SEP83	525.6	.	.	.
529	05OCT83	524.2	.	.	.
530	14OCT83	523.9	12.9	7	1650
531	20OCT83	533.8	.	.	.
532	26OCT83	530.1	.	.	.
533	02NOV83	534.6	.	.	.
534	09NOV83	537.8	.	.	.
535	17NOV83	544.8	.	.	.
536	23NOV83	551.3	.	.	.
537	30NOV83	550.2	.	.	.
538	07DEC83	549.5	.	.	.
539	21DEC83	549.8	.	.	.
540	28DEC83	549.2	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M1U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
541	19APR83	609.7	.	.	.
542	15JUL83	615.7	14.4	7.6	1250
543	23SEP83	593.1	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M1DC ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
544	11JAN83	52.1	10.0	7.1	1300
545	06APR83	51.1	8.7	7.3	1250
546	12JUL83	49.9	9.7	7.3	1200
547	27SEP83	49.1	.	.	.
548	12OCT83	48.9	9.2	7.2	1350

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M11U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
549	18APR83	25.2	.	.	.
550	27SEP83	22.6	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M12U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
551	10JAN83	433.0	13.0	7.0	1450
552	06APR83	432.3	12.9	7.3	1400
553	12JUL83	432.5	13.7	7.3	1350
554	27SEP83	430.1	.	.	.
555	12OCT83	430.0	13.3	7.6	1500

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M2U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
556	19APR83	217.4	.	.	.
557	23SEP83	253.0	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M3U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
558	10JAN83	11.8	9.0	9.4	1300
559	06APR83	11.2	7.7	9.6	1250
560	12JUL83	11.5	9.1	9.6	1200
561	23SEP83	12.7	.	.	.
562	12OCT83	13.3	8.8	9.3	1300

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M4U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
563	19APR83	533.5	.	.	.
564	23SEP83	520.1	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M5U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
565	19APR83	233.2	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M5U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
566	23SEP83	232	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M6U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
567	19APR83	468.7	.	.	.
568	23SEP83	458.0	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M7U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
569	19APR83	423.8	.	.	.
570	15JUL83	421.1	12.6	7	1800
571	23SEP83	420.9	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M8U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
572	21APR83	52.5	.	.	.
573	14JUL83	46.7	10.7	8	1000
574	23SEP83	46.5	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-M9U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
575	22APR83	284.7	.	.	.
576	14JUL83	284.1	13.5	6.8	2600
577	26SEP83	282.2	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-10U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
578	18APR83	398.8	.	.	.
579	26SEP83	366.4	.	.	.

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FIELD WATER QUALITY DATA - TRACT C-A

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-11U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
580	20APR83	460.7	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-12U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
581	26SEP83	385.2	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-15U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
582	11JAN83	301.2	13.0	.	1450
583	15FEB83	.	.	7.2	.
584	06APR83	300.2	12.6	7.4	2050
585	12JUL83	297.9	13.4	8.0	1850
586	26SEP83	293.1	.	.	.
587	12OCT83	295.5	13.2	7.3	2450

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-2-3U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
588	19APR83	187.6	.	.	.
589	27SEP83	162.1	.	.	.

---------- REPORT YEAR=1983 TYPE=UPPER AQUIFER STATION=GS-9U ----------

OBS	DATE	WL	TEMP	PH	SPC_COND
590	13JAN83	337.5	.	.	.
591	14FEB83	340.5	.	.	.
592	16MAR83	343.3	.	.	.
593	07APR83	344.5	.	.	.
594	25MAY83	319.9	.	.	.
595	23JUN83	326.2	.	.	.
596	19JUL83	330.6	.	.	.
597	24AUG83	329.8	.	.	.
598	20SEP83	316.2	.	.	.
599	20OCT83	321.2	.	.	.
600	23NOV83	323.4	.	.	.
601	21DEC83	319.2	.	.	.

APPENDIX 5-1.4

1983 Water Chemistry MANOVA Results

- o Dewatering/Reinjection/Discharge System (Section 5.1)
  - Upper Aquifer Duncan's Multiple Range Test Results
  - Upper Aquifer MANOVA Test Results
- o MIS Development Area
  - Alluvial Aquifer Duncan's Multiple Range Test Results
  - Alluvial Aquifer MANOVA Test Results
  - Upper Aquifer Duncan's Multiple Range Test Results
  - Upper Aquifer MANOVA Test Results

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=154913

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	1382.5	138	FAR FIELD
B	1035.6	92	NEAR FIELD
B			
B	944.2	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SPC_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=270254

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	1858.2	138	FAR FIELD
B	1391.9	92	NEAR FIELD
B			
B	1275.2	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=0.390322

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	7.6285	138	FAR FIELD
B	7.4180	54	CONTROL
B			
B	7.3737	92	NEAR FIELD

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=89409.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	630.45	138	FAR FIELD
B	461.97	92	NEAR FIELD
B			
B	431.74	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=3303.17

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	78.083	54	CONTROL
A			
A	72.875	138	FAR FIELD
A			
A	62.491	92	NEAR FIELD

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=1051.99

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	90.270	138	FAR FIELD
B	72.759	92	NEAR FIELD
C	60.287	54.	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=22256.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	284.56	138	FAR FIELD
B	188.10	92	NEAR FIELD
B			
B	162.69	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=17.2008

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	AREA
	A	1.9969	138	FAR FIELD
	A			
B	A	1.3178	92	NEAR FIELD
B				
B		0.5800	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=101.742

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	AREA
	A	14.993	138	FAR FIELD
	A			
B	A	12.605	92	NEAR FIELD
B				
B		11.041	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=117503

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	690.03	138	FAR FIELD
B	536.72	92	NEAR FIELD
B			
B	506.56	54	CONTROL

PIC BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=35449.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=81.8901

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	519.28	138	FAR FIELD
B	369.11	92	NEAR FIELD
B B	343.19	54	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=154913

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	1250.7	77	1975
A			
A	1226.4	65	1980
A			
A	1192.8	20	1976
A			
A	1151.2	24	1983
A			
A	1130.7	59	1981
A			
A	1128.9	9	1979
A			
A	1094.4	27	1982
A			
A	1038.3	3	1978

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SPC_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=270254

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	1710.7	77	1975
A			
A	1668.3	3	1978
A			
A	1650.1	65	1980
A			
A	1590.8	20	1976
A			
A	1525.0	9	1979
A			
A	1513.0	27	1982
A			
A	1490.5	59	1981
A			
A	1459.4	24	1983

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=0.390322

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	8.0051	59	1981
	A			
	A	8.0000	9	1979
	A			
B	A	7.9351	65	1980
B	A			
B	A	7.7333	27	1982
B				
B		7.4333	3	1978
B				
B		7.4167	24	1983
	C	6.8550	20	1976
	C			
	C	6.8234	77	1975

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=89409.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	620.50	20	1976
A			
A	604.42	77	1975
A			
A	546.28	65	1980
A			
A	491.10	59	1981
A			
A	485.67	9	1979
A			
A	475.33	27	1982
A			
A	458.29	24	1983
A			
A	393.33	3	1978

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=3303.17

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	84.121	65	1980
A			
A	79.375	24	1983
A			
A	73.289	9	1979
A			
A	70.304	77	1975
A			
A	65.426	27	1982
A			
A	65.277	59	1981
A			
A	42.340	20	1976
A			
A	37.333	3	1978

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=1051.99

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	91.705	65	1980
A			
A	88.433	3	1978
A			
A	87.125	24	1983
A			
A	83.444	27	1982
A			
A	81.712	59	1981
A			
A	78.556	9	1979
A			
A	65.452	77	1975
A			
A	63.430	20	1976

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=22256.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	324.50	20	1976
	A			
B	A	299.42	77	1975
B	A			
B	A	221.67	3	1978
B	A			
B	A	204.67	9	1979
B	A			
B	A	200.11	65	1980
B	A			
B	A	193.81	59	1981
B				
B		181.07	27	1982
B				
B		165.67	24	1983

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=17.2008

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	3.0657	77	1975
A			
A	3.0150	20	1976
A			
A	1.7333	3	1978
A			
A	1.0715	27	1982
A			
A	1.0583	24	1983
A			
A	0.6944	9	1979
A			
A	0.6185	65	1980
A			
A	0.4371	59	1981

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=101.742

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		18.395	20	1976
	A				
B	A		16.605	77	1975
B	A				
B	A	C	13.545	65	1980
B	A	C			
B	A	C	12.844	9	1979
B	A	C			
B	A	C	11.148	59	1981
B	A	C			
B	A	C	10.789	27	1982
B		C			
B		C	8.844	24	1983
		C			
		C	7.000	3	1978

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=117503

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	711.25	20	1976
A			
A	707.01	77	1975
A			
A	600.52	65	1980
A			
A	568.22	9	1979
A			
A	533.96	27	1982
A			
A	523.34	59	1981
A			
A	520.38	24	1983
A			
A	453.33	3	1978

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=262 MSE=35449.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=12.9352

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	484.23	65	1980
A			
A	475.00	3	1978
A			
A	466.12	59	1981
A			
A	462.08	24	1983
A			
A	449.11	9	1979
A			
A	440.11	27	1982
A			
A	382.92	77	1975
A			
A	362.50	20	1976

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        11
Q = HYPOTHESIS DF  =         7
NE= DF OF E        =       262
S = MIN(P,Q)       =         7
M = .5(ABS(P-Q)-1) =       1.5
N = .5(NE-P-1)     =     125.0
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              3.90343597

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

             F(77,1752) =     12.69      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        1.17933779

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

             F(77,1806) =      4.75      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.14647944

        W = -(NE-.5(P-Q+1))*LN(L)          =         498.4658
        U = NE-.5(P-Q+1)                   =         259.5000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =           5.9924
        B = (P*Q-2)/4                      =          18.7500

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

             F(77,1517) =      7.45      PROB > F = 0.0001
```

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 3.44881198

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(7,262) = 129.08 (UPPER BOUND)

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL AREA EFFECT

```
H = TYPE I SS&CP MATRIX FOR: AREA
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        11
Q = HYPOTHESIS DF  =         2
NE= DF OF E        =       262
S = MIN(P,Q)       =         2
M = .5(ABS(P-Q)-1) =       4.0
N = .5(NE-P-1)     =     125.0
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              1.20107329

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(22,502) =     13.70      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        0.62041548

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(22,506) =     10.34      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.43097561

        EXACT F = (1-SQRT(L))/SQRT(L)*(NE+Q-P-1)/P
                          WITH 2P AND 2(NE+Q-P-1) DF

              F(22,504) =     11.99      PROB > F = 0.0001
```

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
DEWATERING AND REINJECTION SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL AREA EFFECT

ROY'S MAXIMUM ROOT CRITERION = 1.09186203

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(2,262) = 143.03 (UPPER BOUND)

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=7549.64

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	1263.6	29	FAR FIELD
B	1135.8	11	NEAR FIELD
C	782.1	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SPC_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=22462.8

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	1737.7	29	FAR FIELD
B	1520.5	11	NEAR FIELD
C	1102.1	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=.0736903

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	7.5000	11	NEAR FIELD
B	6.8554	67	CONTROL
B			
B	6.8034	29	FAR FIELD

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=4173.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	501.91	11	NEAR FIELD
A			
A	501.66	29	FAR FIELD
B	380.12	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=532.675

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	113.91	11	NEAR FIELD
B	99.66	29	FAR FIELD
B			
B	91.85	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=314.891

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	105.55	29	FAR FIELD
B	89.55	11	NEAR FIELD
C	50.53	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTwISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=962.325

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	184.79	29	FAR FIELD
B	141.27	11	NEAR FIELD
C	113.15	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=.0148618

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	0.36182	11	NEAR FIELD
A			
A	0.31433	67	CONTROL
A			
A	0.29172	29	FAR FIELD

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=38.0985

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	18.210	29	FAR FIELD
B	13.165	67	CONTROL
B			
B	12.332	11	NEAR FIELD

RIO BLANCO OIL SHALE COMPANY
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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=1585.01

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	593.14	29	FAR FIELD
A			
A	589.82	11	NEAR FIELD
B	444.78	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=2755.12

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=21.3801

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	520.66	29	FAR FIELD
B	454.64	11	NEAR FIELD
C	261.72	67	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=7549.64

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	1088.7	10	1983
	A			
	A	1058.3	3	1977
	A			
	A	1052.8	12	1982
	A			
	A	1047.3	12	1981
	A			
	A	1036.7	3	1979
	B	936.9	24	1976
	B			
C	B	870.2	32	1975
C	B			
C	B	835.0	3	1978
C				
C		791.8	8	1980

RIO BLANCO OIL SHALE COMPANY
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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SPC_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=22462.8

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	2006.7	3	1979
	B	1475.0	12	1982
	B			
	B	1460.0	3	1977
	B			
	B	1455.0	10	1983
	B			
	B	1383.3	3	1978
	B			
	B	1364.6	12	1981
	B			
C	B	1311.4	24	1976
C				
C	D	1175.2	32	1975
	D			
	D	1087.5	8	1980

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=.0736903

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	7.5762	8	1980
	A			
	A	7.5667	3	1978
	A			
	A	7.5667	12	1982
	A			
B	A	7.5250	12	1981
B	A			
B	A	7.3000	3	1979
B				
B		7.2200	10	1983
	C	6.8333	3	1977
	D	6.4812	32	1975
	D			
	D	6.3625	24	1976

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=4173.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	473.00	10	1983
	A			
	A	472.17	12	1982
	A			
	A	461.33	12	1981
	A			
B	A	442.33	3	1979
B	A			
B	A	441.67	3	1977
B	A			
B	A	415.00	24	1976
B	A			
B	A	397.63	8	1980
B	A			
B	A	396.63	32	1975
B				
B		373.33	3	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=532.675

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		115.75	12	1981
	A				
	A		112.40	10	1983
	A				
B	A		105.92	12	1982
B	A				
B	A		95.67	3	1979
B	A				
B	A		95.01	8	1980
B	A				
B	A	C	90.38	32	1975
B	A	C			
B	A	C	89.13	24	1976
B		C			
B		C	80.67	3	1978
		C			
		C	64.33	3	1977

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=314.891

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		91.000	3	1977
	A				
B	A		86.083	12	1981
B	A				
B	A		84.500	10	1983
B	A				
B	A		83.500	12	1982
B	A				
B	A	C	73.333	3	1979
B		C			
B		C	65.125	24	1976
		C			
		C	58.525	8	1980
		C			
		C	57.947	32	1975
		C			
		C	57.667	3	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONwISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=962.325

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	193.33	3	1978
	A			
B	A	166.67	3	1977
B				
B	C	146.38	24	1976
B	C			
B	C	142.67	3	1979
B	C			
B	C	140.00	32	1975
B	C			
B	C	130.67	12	1982
B	C			
B	C	129.70	10	1983
	C			
D	C	117.08	12	1981
D				
D		90.38	8	1980

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=.0148618

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		0.39375	32	1975
	A				
	A		0.38600	10	1983
	A				
B	A		0.33333	3	1979
B	A				
B	A		0.32500	12	1982
B	A				
B	A		0.31000	8	1980
B	A				
B	A	C	0.26667	24	1976
B		C			
B		C	0.20000	3	1977
B		C			
B		C	0.18833	12	1981
		C			
		C	0.13333	3	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=38.0985

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	27.000	3	1979
B	17.422	12	1981
B			
B	15.300	3	1977
B			
B	14.933	12	1982
B			
B	13.984	32	1975
B			
B	13.145	10	1983
B			
B	13.100	24	1976
B			
B	12.787	8	1980
B			
B	11.667	3	1978

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=1585.01

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	556.60	10	1983
	A			
	A	552.50	12	1982
	A			
	A	540.67	3	1979
	A			
	A	538.33	3	1977
	A			
B	A	520.25	12	1981
B				
B	C	479.06	32	1975
B	C			
B	C	475.83	24	1976
	C			
	C	464.13	8	1980
	C			
	C	450.00	3	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=87 MSE=2755.12

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=6.14509

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	433.58	12	1981
	A			
	A	425.40	10	1983
	A			
	A	421.17	12	1982
	A			
	A	420.00	3	1979
	A			
B	A	396.67	3	1977
B				
B	C	345.42	24	1976
	C			
D	C	318.33	3	1978
D	C			
D	C	290.63	32	1975
D				
D		266.13	8	1980

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        11
Q = HYPOTHESIS DF  =         8
NE= DF OF E        =        87
S = MIN(P,Q)       =         8
M = .5(ABS(P-Q)-1) =       1.0
N = .5(NE-P-1)     =      37.5
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              9.87523703

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(88,602) =      8.44      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        2.60451600

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(88,672) =      3.69      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.01216207

        W = -(NE-.5(P-Q+1))*LN(L)          =          374.8019
        U = NE-.5(P-Q+1)                   =           85.0000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =            6.5574
        B = (P*Q-2)/4                      =           21.5000

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

              F(88,514) =      5.61      PROB > F = 0.0001
```

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 6.17556343

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(8,87) = 67.16 (UPPER BOUND)

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL AREA EFFECT

```
H = TYPE I SS&CP MATRIX FOR: AREA
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        11
Q = HYPOTHESIS DF  =         2
NE= DF OF E        =        67
S = MIN(P,Q)       =         2
M = .5(ABS(P-Q)-1) =       4.0
N = .5(NE-P-1)     =      37.5
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =            16.05197595

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(22,152) =     55.45      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        1.48721679

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(22,156) =     20.57      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.02840593

        EXACT F = (1-SQRT(L))/SQRT(L)*(NE+Q-P-1)/P
                          WITH 2P AND 2(NE+Q-P-1) DF

              F(22,154) =     34.53      PROB > F = 0.0001
```

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=ALLUVIAL AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL AREA EFFECT

ROY'S MAXIMUM ROOT CRITERION = 14.82779252

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(2,87) = 645.01 (UPPER BOUND)

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=195424

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	AREA
	A	1328.2	47	FAR FIELD
	A			
B	A	1190.0	61	CONTROL
B				
B		1150.9	93	NEAR FIELD

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SPC_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=319687

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	1818.9	47	FAR FIELD
B	1561.5	93	NEAR FIELD
B			
B	1545.9	61	CONTROL

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=0.335912

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	8.1043	47	FAR FIELD
B	7.5261	93	NEAR FIELD
B			
B	7.4074	61	CONTROL

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=79338.8

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	AREA
	A	597.34	93	NEAR FIELD
	A			
B	A	554.26	47	FAR FIELD
B				
B		460.82	61	CONTROL

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=3245.22

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	82.151	61	CONTROL
A			
A	62.811	47	FAR FIELD
A			
A	62.728	93	NEAR FIELD

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TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=1160.17

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	106.97	47	FAR FIELD
B	84.70	61	CONTROL
B			
B	73.35	93	NEAR FIELD

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MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=23561.6

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	240.17	93	NEAR FIELD
A			
A	237.17	47	FAR FIELD
A			
A	193.54	61	CONTROL

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=15.6684

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	2.6665	93	NEAR FIELD
B	0.8493	61	CONTROL
B			
B	0.6362	47	FAR FIELD

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=94.2847

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	15.147	47	FAR FIELD
A			
A	14.676	93	NEAR FIELD
B	10.328	61	CONTROL

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=105580

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	690.75	93	NEAR FIELD
B	537.00	61	CONTROL
B			
B	517.55	47	FAR FIELD

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MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=40407.5

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=61.9544

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	AREA
A	592.23	47	FAR FIELD
B	488.16	61	CONTROL
C	355.99	93	NEAR FIELD

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TDS
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=195424

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	1359.6	10	1976
A			
A	1258.9	41	1975
A			
A	1252.6	7	1979
A			
A	1236.9	46	1980
A			
A	1210.0	2	1978
A			
A	1165.9	26	1983
A			
A	1161.3	41	1981
A			
A	1090.6	26	1982

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SPC_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=319687

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	1898.0	10	1976
A			
A	1790.0	2	1978
A			
A	1749.0	41	1975
A			
A	1677.4	48	1980
A			
A	1517.4	41	1981
A			
A	1515.4	26	1982
A			
A	1476.4	7	1979
A			
A	1472.1	26	1983

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=0.335912

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		8.1902	41	1981
	A				
B	A		8.0429	7	1979
B	A				
B	A		8.0329	48	1980
B	A				
B	A	C	7.7769	26	1982
B		C			
B		C	7.5500	2	1978
		C			
		C	7.3962	26	1983
	D		6.8500	10	1976
	D				
	D		6.7537	41	1975

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=79338.8

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	831.00	10	1976
	A			
B	A	658.05	41	1975
B				
B		539.04	48	1980
B				
B		485.32	41	1981
B				
B		480.54	26	1982
B				
B		467.46	26	1983
B				
B		465.43	7	1979
B				
B		372.50	2	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=3245.22

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	83.154	26	1983
A			
A	81.745	48	1980
A			
A	64.371	7	1979
A			
A	63.942	26	1982
A			
A	62.766	41	1975
A			
A	62.082	41	1981
A			
A	41.040	10	1976
A			
A	34.500	2	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=1160.17

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	111.00	2	1978
	A			
B	A	99.37	48	1980
B	A			
B	A	89.19	26	1983
B	A			
B	A	88.14	7	1979
B	A			
B	A	87.37	41	1981
B	A			
B	A	84.42	26	1982
B				
B		66.16	10	1976
B				
B		64.63	41	1975

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=23561.6

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	408.50	10	1976
	A			
B	A	319.15	41	1975
B				
B		212.50	2	1978
B				
B		210.29	7	1979
B				
B		195.56	41	1981
B				
B		192.92	48	1980
B				
B		180.81	26	1982
B				
B		163.19	26	1983

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=15.6684

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	5.0000	10	1976
	A			
B	A	4.0376	41	1975
B				
B		1.0731	26	1982
B				
B		0.9700	26	1983
B				
B		0.8500	2	1978
B				
B		0.7643	7	1979
B				
B		0.7090	48	1980
B				
B		0.4866	41	1981

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=94.2847

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	23.690	10	1976
	A			
B	A	17.420	41	1975
B				
B	C	13.476	48	1980
B	C			
B	C	12.657	7	1979
B	C			
B	C	12.019	41	1981
B	C			
B	C	10.692	26	1982
B	C			
B	C	9.077	26	1983
	C			
	C	6.750	2	1978

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MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: HCO3
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=105580

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	944.00	10	1976
	A			
B	A	766.95	41	1975
B				
B		575.67	48	1980
B				
B		539.00	7	1979
B				
B		539.00	26	1982
B				
B		532.38	26	1983
B				
B		495.02	41	1981
B				
B		440.00	2	1978

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
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TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=178 MSE=40407.5

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.99489

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	570.00	2	1978
	A			
B	A	507.94	48	1980
B	A			
B	A	501.59	41	1981
B	A			
B	A	494.57	7	1979
B	A			
B	A	467.15	26	1983
B	A			
B	A	435.92	26	1982
B				
B		349.93	41	1975
B				
B		334.50	10	1976

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL AREA EFFECT

```
H = TYPE I SS&CP MATRIX FOR: AREA
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        11
Q = HYPOTHESIS DF  =         2
NE= DF OF E        =       178
S = MIN(P,Q)       =         2
M = .5(ABS(P-Q)-1) =       4.0
N = .5(NE-P-1)     =      83.0
```

HOTELLING-LAWLEY TRACE = TR(E**-1*H) = 2.48556004

F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
WITH S(2M+S+1) AND 2(S*N+1) DF

F(22,334) = 18.87 PROB > F = 0.0001

PILLAI'S TRACE V = TR(H*INV(H+E)) = 0.87711296

F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
WITH S(2M+S+1) AND S(2N+S+1) DF

F(22,338) = 12.00 PROB > F = 0.0001

WILKS' CRITERION L = DET(E)/DET(H+E) = 0.25033374

EXACT F = (1-SQRT(L))/SQRT(L)*(NE+Q-P-1)/P
WITH 2P AND 2(NE+Q-P-1) DF

F(22,336) = 15.25 PROB > F = 0.0001

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL AREA EFFECT

ROY'S MAXIMUM ROOT CRITERION = 2.26032364

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(2,178) = 201.17 (UPPER BOUND)

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MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        11
Q = HYPOTHESIS DF  =         7
NE= DF OF E        =       178
S = MIN(P,Q)       =         7
M = .5(ABS(P-Q)-1) =       1.5
N = .5(NE-P-1)     =      83.0
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              6.66925182

     F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                       WITH S(2M+S+1) AND 2(S*N+1) DF

          F(77,1164) =     14.40      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        1.46882562

     F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                       WITH S(2M+S+1) AND S(2N+S+1) DF

          F(77,1218) =      4.20      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.07366970

     W = -(NE-.5(P-Q+1))*LN(L)          =          457.6851
     U = NE-.5(P-Q+1)                   =          175.5000
     Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =            5.9924
     B = (P*Q-2)/4                      =           18.7500

     F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                       WITH P*Q AND U*Z-2B DF

          F(77,1014) =      7.18      PROB > F = 0.0001
```

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM

MULTIVARIATE ANALYSIS OF VARIANCE - WATER CHEMISTRY DATA
MODIFIED INSITU DEVELOPMENT SYSTEM
TYPE=UPPER AQUIFER

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 5.92709279

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

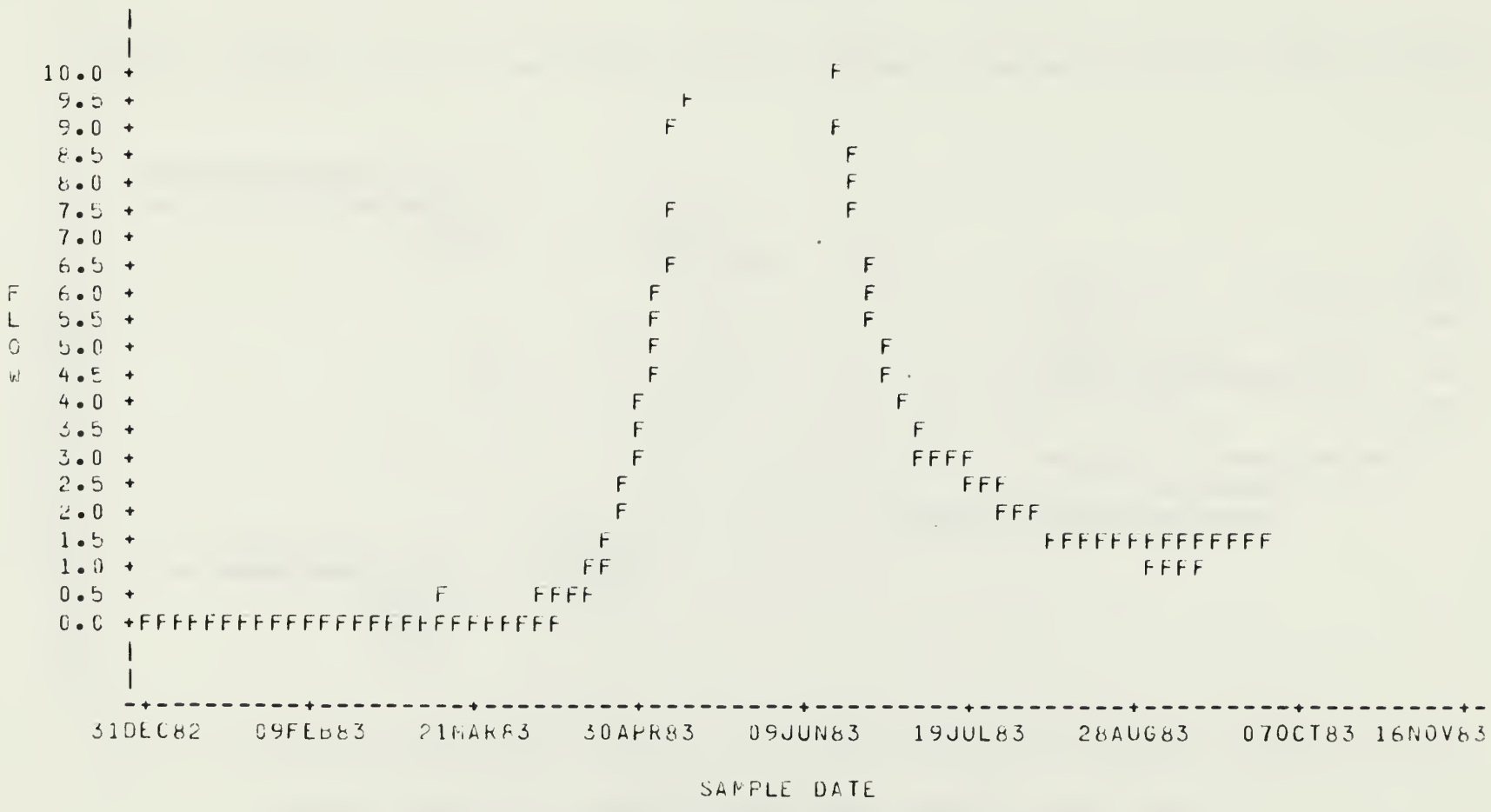
F(7,178) = 150.72 (UPPER BOUND)

APPENDIX 5-2.1

1983 Water Year USGS Data (Stream Gage Sites)

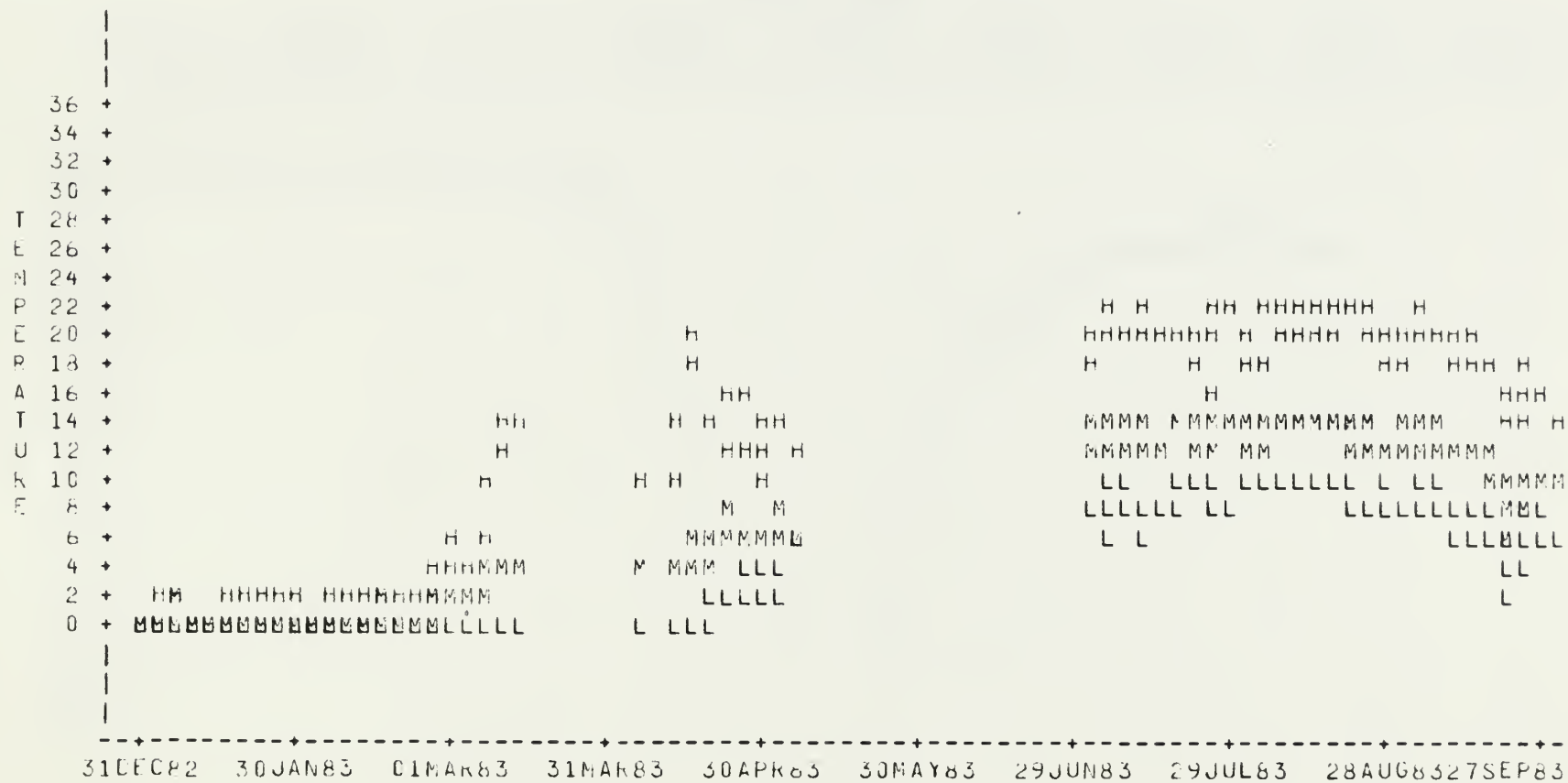
- Daily Values Time Series
- Daily Field Measurements Data Listing
- Water Chemistry Data Listing
- Duncan's Multiple Range Test Results - Daily Field Measurements
- Duncan's Multiple Range Test Results - Water Chemistry Data

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=B-CORRAL GULCH - WEST



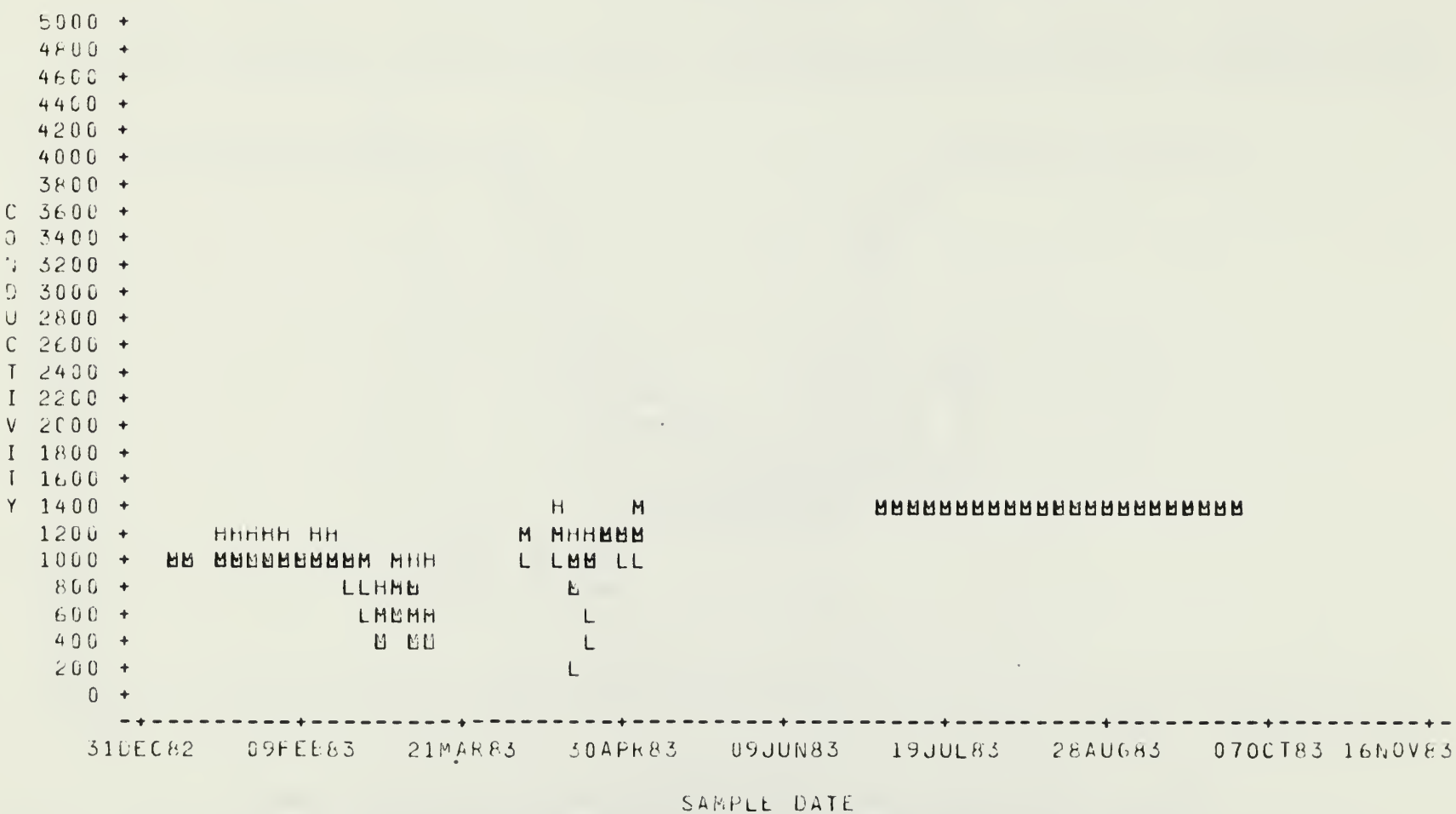
NOTE: 37 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 148 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWG) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=B-CORRAL GULCH - WEST



NOTE: 273 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 280 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=B-CORRAL GULCH - WEST



NOTE: 327 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 320 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=C-BOX ELDER GULCH - WEST

NOTE: 43 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 146 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
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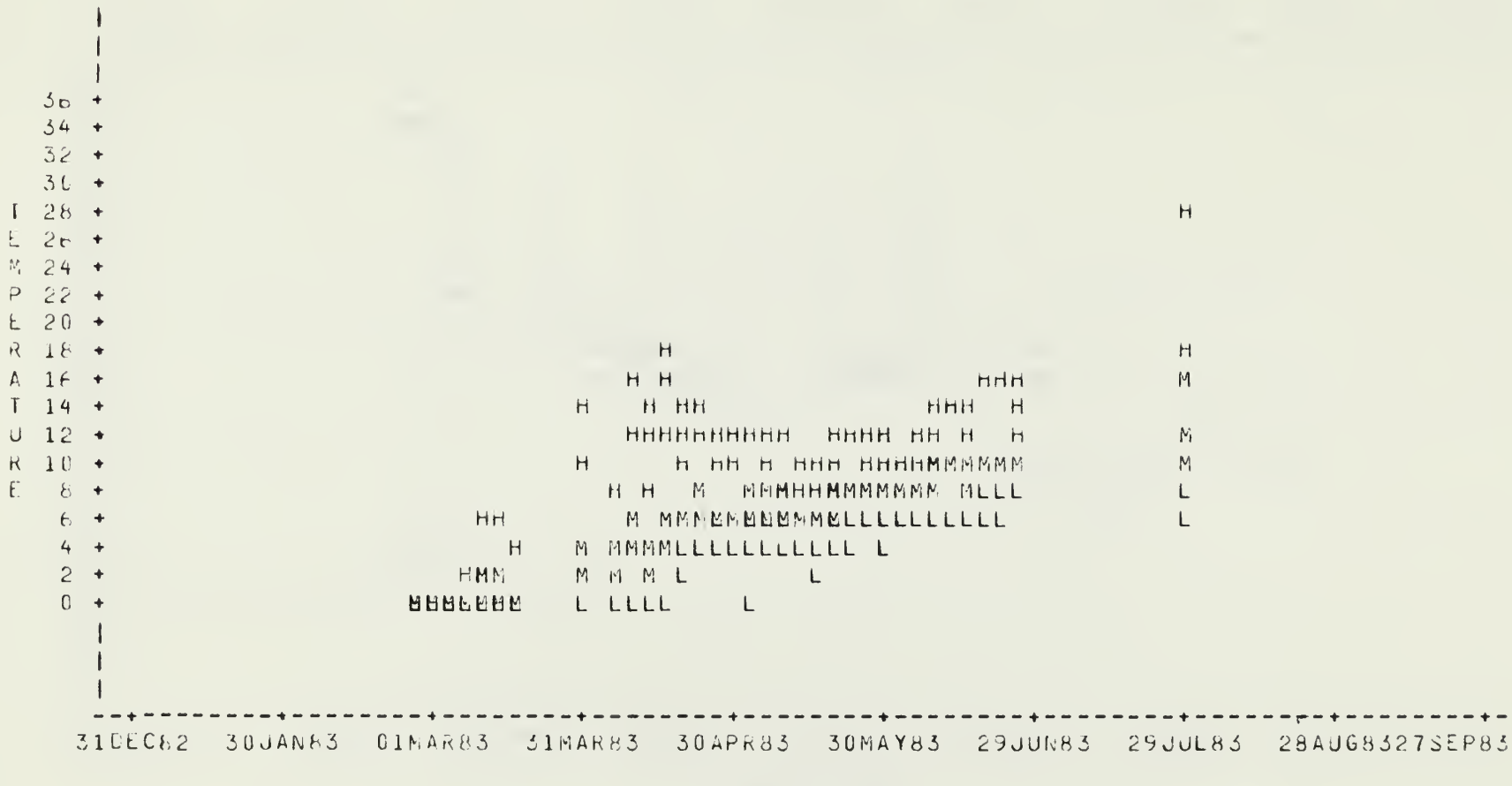
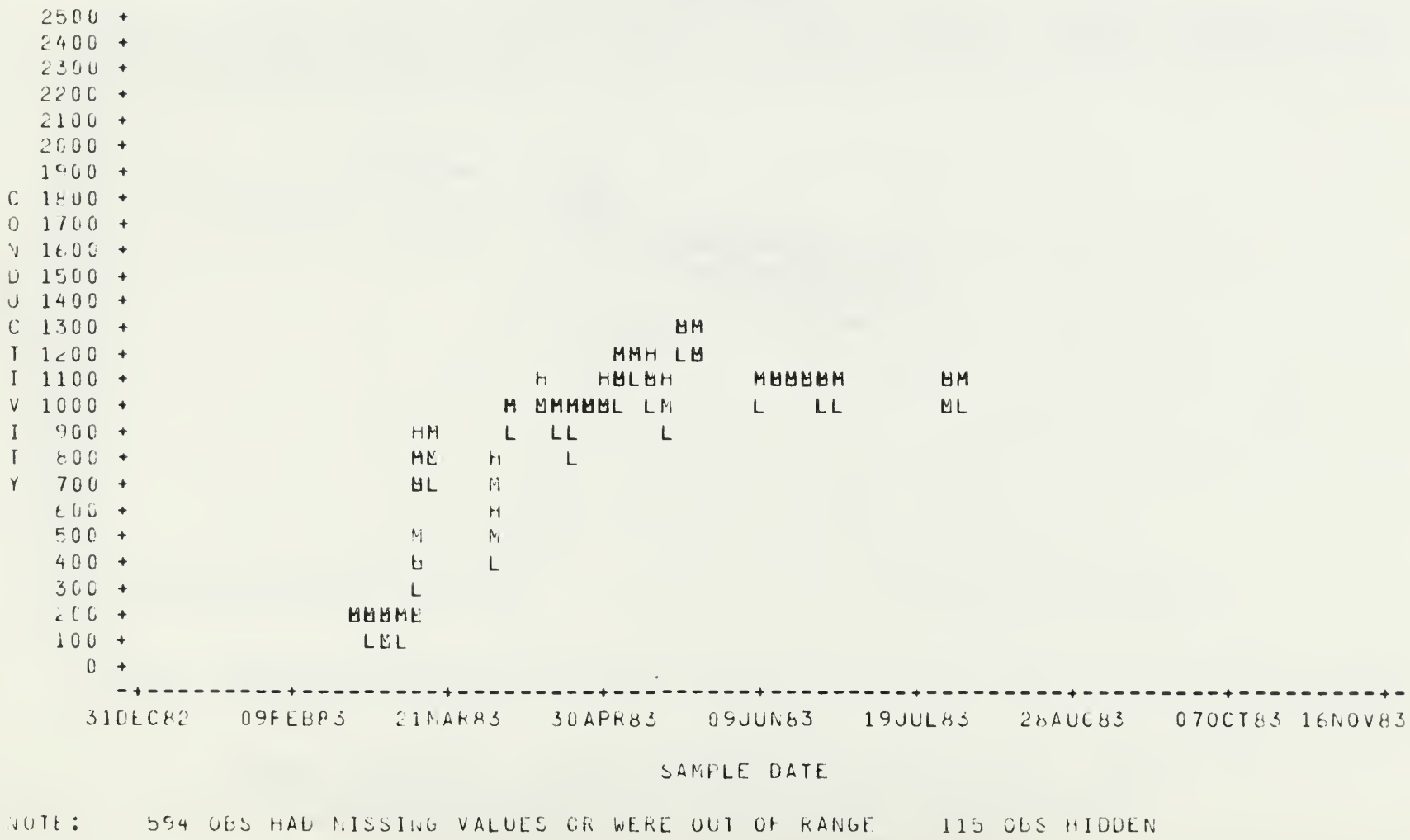
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=C-BOX ELDER GULCH - WEST



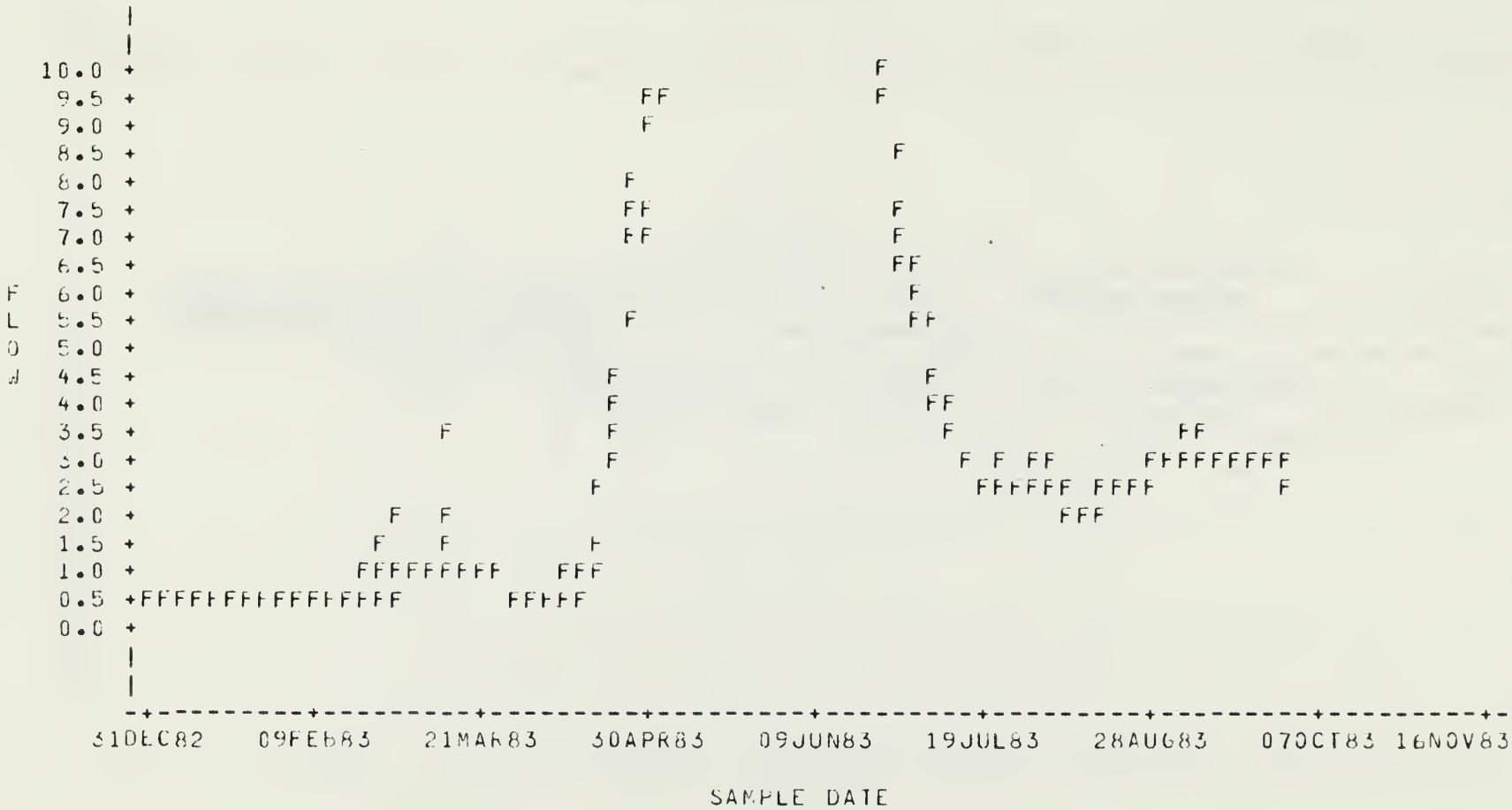
NOTE: 495 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 165 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWG) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=C-BOX ELDER GULCH - WEST



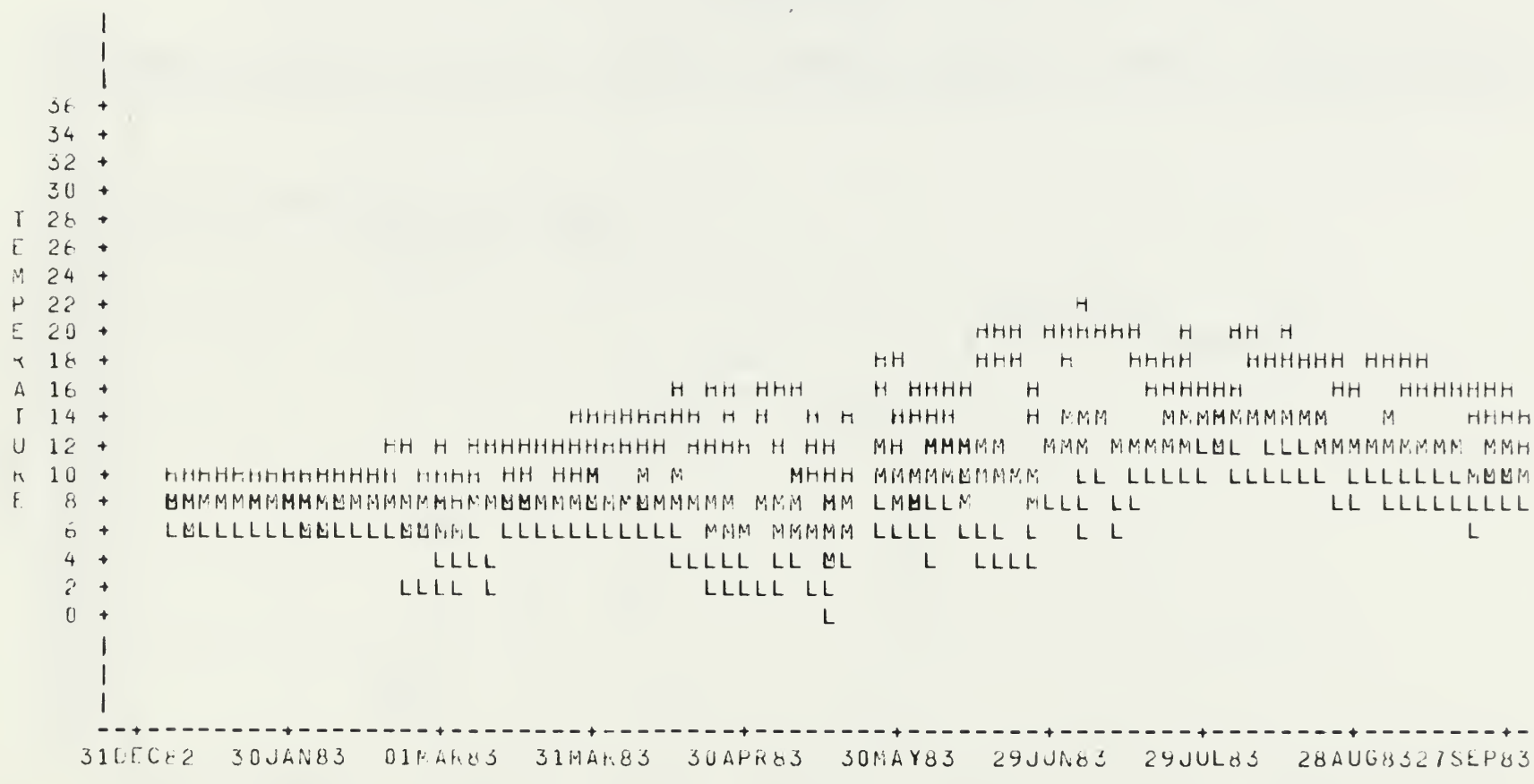
NOTE: 594 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 115 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=D-CORRAL GULCH - EAST



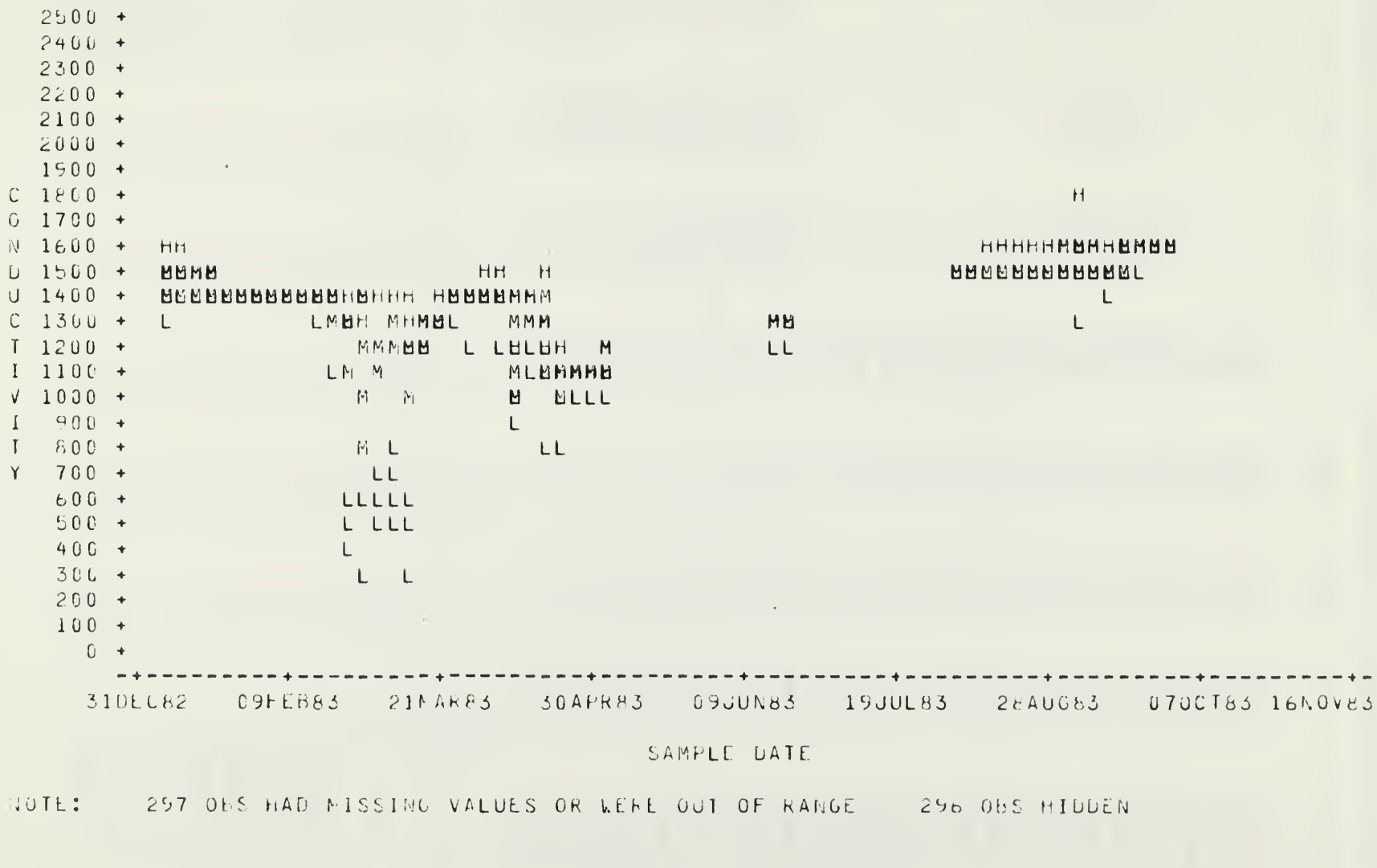
NOTE: 52 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 125 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=D-CORRAL GULCH - EAST



NOTE: 36 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 394 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS
REPORT YEAR=1983 STATION LOCATION=D-CORRAL GULCH - EAST



NOTE: 297 OBS HAD MISSING VALUES OR WERE OUT OF RANGE 296 OBS HIDDEN

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS

-- REPORT YEAR=1983 MONTH=JANUARY STATION LOCATION=B-CORRAL GULCH - WEST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JAN83	0.15	0.0	0.0	0.0	.	.	.	.	.
02JAN83	0.14	0.0	0.0	0.0	.	.	.	.	.
03JAN83	0.11	0.6	0.0	0.1	.	.	.	.	.
04JAN83	0.09	1.1	0.0	0.4	.	.	.	.	.
05JAN83	0.08	1.6	0.5	1.0	.	.	.	.	.
06JAN83	0.08	2.0	1.0	1.6	1090	1010	1043	.	.
07JAN83	0.08	2.1	1.0	1.6	1080	1000	1034	.	.
08JAN83	0.09	1.6	0.0	0.7	1080	1000	1035	.	.
09JAN83	0.07	0.0	0.0	0.0	1100	1000	1059	.	.
10JAN83	0.07	0.5	0.0	0.0	1100	980	1026	.	.
11JAN83	0.09	0.5	0.0	0.0	.	.	.	.	.
12JAN83	0.09	0.1	0.0	0.0	.	.	.	.	.
13JAN83	0.09	0.0	0.0	0.0	.	.	.	.	.
14JAN83	0.09	1.0	0.0	0.1	.	.	.	.	.
15JAN83	0.09	0.6	0.0	0.0	.	.	.	.	.
16JAN83	0.09	1.0	0.0	0.2	.	.	.	.	.
17JAN83	0.09	1.9	0.5	1.0	.	.	.	.	.
18JAN83	0.08	1.6	0.0	0.8	.	.	.	.	.
19JAN83	0.07	1.9	0.0	0.7	.	.	.	.	.
20JAN83	0.06	1.1	0.0	0.4	1090	1030	1072	.	.
21JAN83	0.05	1.6	0.0	0.6	1104	1024	1073	.	.
22JAN83	0.04	1.1	0.0	0.5	1097	1017	1071	.	.
23JAN83	0.03	1.5	0.0	0.5	1111	1021	1069	.	.
24JAN83	0.02	1.0	0.0	0.3	1115	1025	1073	.	.
25JAN83	0.02	1.9	0.0	0.9	1108	1018	1047	.	.
26JAN83	0.02	1.6	0.0	0.5	1112	1022	1075	.	.
27JAN83	0.02	2.0	0.0	0.8	1116	1026	1065	.	.
28JAN83	0.03	2.0	0.4	1.0	1109	1029	1054	.	.
29JAN83	0.02	1.6	0.0	0.5	1133	1033	1074	.	.
30JAN83	0.03	1.5	0.0	0.3	1127	1037	1087	.	.
31JAN83	0.00	.	.	.	.	.	.	.	.

- REPORT YEAR=1983 MONTH=JANUARY STATION LOCATION=C-BOX ELDER GULCH - WEST

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JAN83	0	.	.	.	.	.	.	.	.
02JAN83	0	.	.	.	.	.	.	.	.
03JAN83	0	.	.	.	.	.	.	.	.
04JAN83	0	.	.	.	.	.	.	.	.
05JAN83	0	.	.	.	.	.	.	.	.
06JAN83	0	.	.	.	.	.	.	.	.
07JAN83	0	.	.	.	.	.	.	.	.
08JAN83	0	.	.	.	.	.	.	.	.
09JAN83	0	.	.	.	.	.	.	.	.
10JAN83	0	.	.	.	.	.	.	.	.
11JAN83	0	.	.	.	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS

- REPORT YEAR=1983 MONTH=JANUARY STATION LOCATION=C-BOX ELDER GULCH - WEST

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
12JAN83	0	.	.	.	.	.	.	.	.
13JAN83	0	.	.	.	.	.	.	.	.
14JAN83	0	.	.	.	.	.	.	.	.
15JAN83	0	.	.	.	.	.	.	.	.
16JAN83	0	.	.	.	.	.	.	.	.
17JAN83	0	.	.	.	.	.	.	.	.
18JAN83	0	.	.	.	.	.	.	.	.
19JAN83	0	.	.	.	.	.	.	.	.
20JAN83	0	.	.	.	.	.	.	.	.
21JAN83	0	.	.	.	.	.	.	.	.
22JAN83	0	.	.	.	.	.	.	.	.
23JAN83	0	.	.	.	.	.	.	.	.
24JAN83	0	.	.	.	.	.	.	.	.
25JAN83	0	.	.	.	.	.	.	.	.
26JAN83	0	.	.	.	.	.	.	.	.
27JAN83	0	.	.	.	.	.	.	.	.
28JAN83	0	.	.	.	.	.	.	.	.
29JAN83	0	.	.	.	.	.	.	.	.
30JAN83	0	.	.	.	.	.	.	.	.
31JAN83	0	.	.	.	.	.	.	.	.

-- REPORT YEAR=1983 MONTH=JANUARY STATION LOCATION=D-CORRAL GULCH - EAST --

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JAN83	0.56	.	.	.	.	.	.	.	.
02JAN83	0.55	.	.	.	.	.	.	.	.
03JAN83	0.55	.	.	.	.	.	.	.	.
04JAN83	0.55	.	.	.	.	.	.	.	.
05JAN83	0.55	.	.	.	.	.	.	.	.
06JAN83	0.59	8.2	7.7	7.9	1450	1410	1434	.	.
07JAN83	0.55	9.7	7.0	8.0	1474	1314	1396	.	.
08JAN83	0.55	10.0	5.7	7.5	1518	1348	1436	.	.
09JAN83	0.56	8.7	5.5	6.6	1551	1451	1503	.	.
10JAN83	0.56	9.2	6.0	7.2	1575	1475	1515	.	.
11JAN83	0.56	9.5	6.5	7.3	1545	1410	1515	.	.
12JAN83	0.56	9.5	6.4	7.2	1451	1411	1420	.	.
13JAN83	0.57	9.7	6.2	7.3	1461	1401	1428	.	.
14JAN83	0.57	9.7	6.4	7.3	1472	1422	1437	.	.
15JAN83	0.57	9.5	6.4	7.3	1453	1423	1444	.	.
16JAN83	0.57	9.7	6.4	7.4	1463	1433	1453	.	.
17JAN83	0.58	10.2	7.0	8.0	1514	1444	1467	.	.
18JAN83	0.58	9.5	5.7	7.6	1514	1454	1483	.	.
19JAN83	0.58	9.2	6.5	7.7	1535	1465	1491	.	.
20JAN83	0.58	9.7	6.5	7.5	1525	1400	1446	.	.
21JAN83	0.59	9.7	6.7	7.7	1410	1390	1401	.	.
22JAN83	0.59	9.5	6.7	7.6	1410	1380	1397	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS

-- REPORT YEAR=1983 MONTH=JANUARY STATION LOCATION=D-CORRAL GULCH - EAST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
23JAN83	0.59	8.9	6.5	7.5	1450	1380	1414	.	.
24JAN83	0.59	8.4	6.2	7.3	1440	1380	1402	.	.
25JAN83	0.60	9.5	6.7	7.8	.	.	.	.	.
26JAN83	0.56	10.0	6.9	7.7	1410	1390	1404	.	.
27JAN83	0.56	10.4	6.7	7.9	1450	1380	1405	.	.
28JAN83	0.60	10.0	6.9	8.0	.	.	.	.	.
29JAN83	0.61	9.7	6.7	7.7	.	.	.	.	.
30JAN83	0.61	9.7	6.5	7.4	1440	1380	1401	.	.
31JAN83	0.61	8.7	6.5	7.2	1410	1380	1402	.	.

-- REPORT YEAR=1983 MONTH=FEBRUARY STATION LOCATION=D-CORRAL GULCH - WEST

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01FEB83	0.03	0.9	0.0	0.1	1134	1044	1085	.	.
02FEB83	0.00	.	.	.	.	.	.	.	.
03FEB83	0.00	.	.	.	.	.	.	.	.
04FEB83	0.00	.	.	.	.	.	.	.	.
05FEB83	0.04	0.6	0.0	0.1	1069	989	1052	.	.
06FEB83	0.02	0.5	0.0	0.0	1143	1063	1088	.	.
07FEB83	0.03	1.1	0.0	0.4	1096	1066	1084	.	.
08FEB83	0.02	1.4	0.4	0.9	1100	1070	1083	.	.
09FEB83	0.02	1.6	0.5	1.0	1100	1000	1051	.	.
10FEB83	0.02	1.5	0.0	0.7	1084	1004	1026	.	.
11FEB83	0.02	0.6	0.0	0.2	1098	1008	1048	.	.
12FEB83	0.00	.	.	.	.	.	.	.	.
13FEB83	0.02	1.4	0.0	0.8	1097	927	1023	.	.
14FEB83	0.04	1.9	0.0	1.1	1101	1021	1040	.	.
15FEB83	0.03	1.5	0.0	0.4	1105	955	1051	.	.
16FEB83	0.05	2.1	0.1	1.0	1060	930	1032	.	.
17FEB83	0.04	1.6	0.0	0.5	1064	980	1053	.	.
18FEB83	0.06	2.1	0.0	0.8	1068	938	1034	.	.
19FEB83	0.08	2.1	0.0	0.7	1072	1022	1047	.	.
20FEB83	0.08	2.6	0.0	0.8	1076	966	1044	.	.
21FEB83	0.04	2.1	0.0	0.8	1081	951	1033	.	.
22FEB83	0.05	2.5	0.0	0.8	1085	861	1021	.	.
23FEB83	0.07	2.1	0.0	0.7	1089	759	1007	.	.
24FEB83	0.06	2.4	0.0	0.7	1020	600	928	.	.
25FEB83	0.09	3.4	0.0	1.2	.	.	.	.	.
26FEB83	0.07	3.4	0.0	1.0	.	.	.	.	.
27FEB83	0.09	3.6	0.0	1.1	.	.	.	.	.
28FEB83	0.11	5.1	0.0	1.7	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWG) MEASUREMENTS

REPORT YEAR=1983 MONTH=FEBRUARY STATION LOCATION=C-BOX ELDER GULCH - WEST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01FEB83	0.00	.	.	.	.	.	.	.	.
02FEB83	0.00	.	.	.	.	.	.	.	.
03FEB83	0.00	.	.	.	.	.	.	.	.
04FEB83	0.00	.	.	.	.	.	.	.	.
05FEB83	0.00	.	.	.	.	.	.	.	.
06FEB83	0.00	.	.	.	.	.	.	.	.
07FEB83	0.00	.	.	.	.	.	.	.	.
08FEB83	0.00	.	.	.	.	.	.	.	.
09FEB83	0.00	.	.	.	.	.	.	.	.
10FEB83	0.00	.	.	.	.	.	.	.	.
11FEB83	0.00	.	.	.	.	.	.	.	.
12FEB83	0.00	.	.	.	.	.	.	.	.
13FEB83	0.00	.	.	.	.	.	.	.	.
14FEB83	0.00	.	.	.	.	.	.	.	.
15FEB83	0.00	.	.	.	.	.	.	.	.
16FEB83	0.00	.	.	.	.	.	.	.	.
17FEB83	0.00	.	.	.	.	.	.	.	.
18FEB83	0.00	.	.	.	.	.	.	.	.
19FEB83	0.00	.	.	.	.	.	.	.	.
20FEB83	0.00	.	.	.	.	.	.	.	.
21FEB83	0.00	.	.	.	.	.	.	.	.
22FEB83	0.01	.	.	.	.	.	.	.	.
23FEB83	0.05	.	.	.	.	.	.	.	.
24FEB83	0.09	0.5	0.4	0.4	240	190	206	.	.
25FEB83	0.09	0.5	0.4	0.4	200	180	187	.	.
26FEB83	0.05	0.4	0.4	0.4	200	190	194	.	.
27FEB83	0.04	0.5	0.3	0.4	210	190	201	.	.
28FEB83	0.05	0.6	0.3	0.4	220	140	186	.	.

-- REPORT YEAR=1983 MONTH=FEBRUARY STATION LOCATION=D-CORRAL GULCH - EAST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01FEB83	0.61	8.5	6.2	7.3	1390	1380	1385	.	.
02FEB83	0.62	9.7	6.2	7.3	1450	1380	1396	.	.
03FEB83	0.62	9.2	6.0	6.8	1450	1380	1413	.	.
04FEB83	0.62	9.7	6.2	7.3	1440	1380	1406	.	.
05FEB83	0.62	9.7	6.2	7.4	1440	1400	1408	.	.
06FEB83	0.63	9.2	6.0	7.0	1410	1380	1395	.	.
07FEB83	0.63	9.7	6.5	7.7	1410	1380	1401	.	.
08FEB83	0.63	9.9	7.2	8.1	1410	1380	1389	.	.
09FEB83	0.67	10.7	6.7	8.1	1410	1380	1403	.	.
10FEB83	0.68	9.9	6.5	7.7	1410	1390	1403	.	.
11FEB83	0.68	10.5	6.4	7.6	1410	1380	1404	.	.
12FEB83	0.68	10.2	6.5	7.7	1440	1400	1410	.	.
13FEB83	0.68	11.0	6.7	8.1	1410	1380	1399	.	.
14FEB83	0.69	9.5	6.7	7.9	1410	1380	1398	.	.

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-- REPORT YEAR=1983 MONTH=FEBRUARY STATION LOCATION=D-CORRAL GULCH - EAST

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
15FEB83	0.73	10.7	6.5	7.9	1410	1380	1393	.	.
16FEB83	0.73	10.5	6.7	8.0	1410	1380	1395	.	.
17FEB83	0.69	9.9	6.5	7.7	1410	1310	1389	.	.
18FEB83	0.70	10.2	6.7	7.9	1410	1290	1385	.	.
19FEB83	0.70	9.5	6.2	7.9	1410	1380	1402	.	.
20FEB83	0.74	11.4	6.7	8.1	1410	1400	1403	.	.
21FEB83	0.74	11.7	6.5	7.9	1410	1380	1405	.	.
22FEB83	0.77	11.9	6.5	7.8	1410	1140	1347	.	.
23FEB83	1.00	11.5	3.0	6.7	1310	550	1116	.	.
24FEB83	1.30	10.9	2.0	6.1	1380	440	1065	.	.
25FEB83	1.10	9.5	2.7	6.0	1317	617	1100	.	.
26FEB83	0.75	9.4	6.0	7.2	1404	1264	1331	.	.
27FEB83	0.71	10.7	6.5	8.0	1432	1402	1421	.	.
28FEB83	1.00	11.4	3.0	7.3	1439	579	1249	.	.

--- REPORT YEAR=1983 MONTH=MARCH STATION LOCATION=B-CORRAL GULCH - WEST --

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01MAR83	0.11	4.1	0.0	1.4	700	400	445	.	.
02MAR83	0.09	4.6	0.5	1.6	731	431	546	.	.
03MAR83	0.10	3.9	0.0	1.6	753	553	639	.	.
04MAR83	0.07	4.1	0.4	1.8	844	564	671	.	.
05MAR83	0.11	3.6	0.5	1.7	1066	676	902	.	.
06MAR83	0.08	6.5	0.0	2.0	987	667	883	.	.
07MAR83	0.04	.	.	.	999	799	860	.	.
08MAR83	0.06	.	.	.	1010	760	890	.	.
09MAR83	0.10	10.0	0.0	3.5	830	400	493	.	.
10MAR83	0.10	11.6	0.0	3.1	620	400	512	.	.
11MAR83	0.13	12.1	0.0	3.5	630	390	507	.	.
12MAR83	0.13	13.5	0.5	4.8	630	330	496	.	.
13MAR83	0.26	13.5	0.0	3.7	910	330	543	.	.
14MAR83	0.15	.	.	.	.	.	.	.	.
15MAR83	0.15	.	.	.	.	.	.	.	.
16MAR83	0.06	.	.	.	.	.	.	.	.
17MAR83	0.12	.	.	.	.	.	.	.	.
18MAR83	0.02	.	.	.	.	.	.	.	.
19MAR83	0.15	.	.	.	.	.	.	.	.
20MAR83	0.07	.	.	.	.	.	.	.	.
21MAR83	0.09	.	.	.	.	.	.	.	.
22MAR83	0.12	.	.	.	.	.	.	.	.
23MAR83	0.13	.	.	.	.	.	.	.	.
24MAR83	0.19	.	.	.	.	.	.	.	.
25MAR83	0.23	.	.	.	.	.	.	.	.
26MAR83	0.13	.	.	.	.	.	.	.	.
27MAR83	0.10	.	.	.	.	.	.	.	.
28MAR83	0.00	.	.	.	.	.	.	.	.

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--- REPORT YEAR=1983 MONTH=MARCH STATION LOCATION=B-CORRAL GULCH - WEST ---

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
29MAR83	0	.	.	.	.	.	.	.	.
30MAR83	0	.	.	.	.	.	.	.	.

-- REPORT YEAR=1983 MONTH=MARCH STATION LOCATION=C-BOX ELDER GULCH - WEST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01MAR83	0.09	0.6	0.4	0.4	180	140	162	.	.
02MAR83	0.13	0.6	0.4	0.4	160	140	151	.	.
03MAR83	0.05	0.5	0.4	0.4	160	130	150	.	.
04MAR83	0.03	0.6	0.4	0.5	180	150	163	.	.
05MAR83	0.03	0.6	0.4	0.4	190	140	170	.	.
06MAR83	0.02	1.1	0.4	0.5	200	170	187	.	.
07MAR83	0.02	1.1	0.4	0.5	220	100	174	.	.
08MAR83	0.02	1.7	0.4	0.6	200	130	171	.	.
09MAR83	0.02	1.7	0.4	0.5	210	130	174	.	.
10MAR83	0.02	2.5	0.4	0.7	230	130	195	.	.
11MAR83	0.10	6.5	0.5	1.5	380	160	225	.	.
12MAR83	0.19	5.4	0.4	1.3	730	320	518	.	.
13MAR83	0.17	5.5	0.4	1.3	860	380	720	.	.
14MAR83	0.05	0.9	0.4	0.6	850	720	771	.	.
15MAR83	0.06	0.5	0.4	0.4	880	810	850	.	.
16MAR83	0.03	3.2	0.4	0.7	910	720	788	.	.
17MAR83	0.02	3.2	0.4	0.7	880	850	866	.	.
18MAR83	0.00	.	.	.	.	.	.	.	.
19MAR83	0.00	.	.	.	.	.	.	.	.
20MAR83	0.03	.	.	.	.	.	.	.	.
21MAR83	0.06	.	.	.	.	.	.	.	.
22MAR83	0.03	.	.	.	.	.	.	.	.
23MAR83	0.02	.	.	.	.	.	.	.	.
24MAR83	0.00	.	.	.	.	.	.	.	.
25MAR83	0.00	.	.	.	.	.	.	.	.
26MAR83	0.00	.	.	.	.	.	.	.	.
27MAR83	0.00	.	.	.	.	.	.	.	.
28MAR83	0.00	.	.	.	.	.	.	.	.
29MAR83	0.00	.	.	.	.	.	.	.	.
30MAR83	0.00	.	.	.	.	.	.	.	.
31MAR83	0.10	9.9	0.5	2.0	790	410	706	.	.

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--- REPORT YEAR=1983 MONTH=MARCH STATION LOCATION=D-CORRAL GULCH - EAST --

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01MAR83	1.90	10.3	1.2	5.8	1446	286	969	.	.
02MAR83	1.10	8.2	3.7	6.0	1340	340	826	.	.
03MAR83	0.96	9.7	3.2	6.8	1390	650	1187	.	.
04MAR83	0.91	9.0	4.2	6.8	1400	740	1165	.	.
05MAR83	1.10	8.7	2.7	6.2	1400	540	1079	.	.
06MAR83	0.98	10.9	3.7	7.2	1410	580	1173	.	.
07MAR83	0.77	10.4	5.7	7.5	1400	840	1283	.	.
08MAR83	0.99	12.0	5.2	7.9	1400	640	1236	.	.
09MAR83	1.10	12.7	5.0	7.9	1410	540	1200	.	.
10MAR83	1.10	12.0	4.2	8.2	1410	690	1186	.	.
11MAR83	3.40	12.7	1.7	7.3	1400	300	1036	.	.
12MAR83	2.00	12.7	3.5	8.3	1340	500	1023	.	.
13MAR83	1.50	12.4	5.7	8.5	1390	650	1203	.	.
14MAR83	1.00	9.2	6.4	8.0	1250	1180	1223	.	.
15MAR83	1.00	9.0	7.2	7.8	1250	1240	1246	.	.
16MAR83	1.20	12.5	6.7	8.6	1250	1200	1232	.	.
17MAR83	1.00	10.5	7.4	8.3	1250	1200	1226	.	.
18MAR83	0.90	9.0	6.2	7.5	1310	1240	1286	.	.
19MAR83	0.90	12.2	6.4	8.1	1310	1300	1304	.	.
20MAR83	0.90	12.0	6.7	8.2	1340	1300	1303	.	.
21MAR83	1.00	12.0	6.5	8.3	1350	1310	1329	.	.
22MAR83	1.00	11.7	6.9	8.6	1380	1340	1345	.	.
23MAR83	1.00	13.0	6.4	8.8	1390	1310	1355	.	.
24MAR83	0.90	9.5	6.7	7.9	1410	1340	1392	.	.
25MAR83	0.80	10.9	6.9	8.0	1410	1390	1405	.	.
26MAR83	0.80	10.7	7.0	8.4	1410	1400	1408	.	.
27MAR83	0.75	12.5	6.9	8.7	1410	1390	1406	.	.
28MAR83	0.70	10.5	7.0	8.6	1410	1390	1400	.	.
29MAR83	0.69	13.2	6.7	8.9	1427	1407	1421	.	.
30MAR83	0.67	13.5	7.2	9.2	1434	1184	1381	.	.
31MAR83	0.68	10.9	6.2	8.1	1401	1351	1390	.	.

--- REPORT YEAR=1983 MONTH=APRIL STATION LOCATION=B-CORRAL GULCH - WEST --

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01APR83	0.16	.	.	.	.	.	.	.	.
02APR83	0.18	.	.	.	.	.	.	.	.
03APR83	0.22	.	.	.	.	.	.	.	.
04APR83	0.29	.	.	.	.	.	.	.	.
05APR83	0.19	9.6	0.0	3.2	1280	1020	1121	.	.
06APR83	0.15	.	.	.	.	.	.	.	.
07APR83	0.18	.	.	.	.	.	.	.	.
08APR83	0.15	.	.	.	.	.	.	.	.
09APR83	0.10	.	.	.	.	.	.	.	.
10APR83	0.11	.	.	.	.	.	.	.	.
11APR83	0.60	.	.	.	.	.	.	.	.

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--- REPORT YEAR=1983 MONTH=APRIL STATION LOCATION=B-CORRAL GULCH - WEST ---

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
12APR83	0.49	.	.	.	.	.	.	.	.
13APR83	0.53	10.0	0.0	3.4	1200	1100	1146	.	.
14APR83	0.41	14.6	0.0	3.6	1380	1000	1155	.	.
15APR83	0.49	18.1	0.0	4.5	1300	920	1129	.	.
16APR83	0.67	19.0	0.0	5.5	1220	920	1100	.	.
17APR83	0.75	20.9	0.0	6.4	1190	880	1059	.	.
18APR83	1.20	18.6	0.0	4.7	1130	220	902	.	.
19APR83	0.88	13.6	1.0	4.9	1030	220	720	.	.
20APR83	0.92	14.0	1.6	6.0	1110	420	908	.	.
21APR83	1.10	13.5	2.0	5.5	1100	420	914	.	.
22APR83	1.30	11.9	1.5	5.1	1130	920	1068	.	.
23APR83	1.70	16.1	2.1	6.9	1130	610	1012	.	.
24APR83	2.00	16.5	2.6	7.5	.	.	.	.	.
25APR83	2.20	15.9	1.9	6.5	.	.	.	.	.
26APR83	2.40	15.1	2.0	6.7	1230	1120	1202	.	.
27APR83	2.50	12.1	4.0	6.8	1230	1120	1181	.	.
28APR83	2.90	12.0	5.0	7.0	1210	1100	1185	.	.
29APR83	3.70	12.6	4.0	6.6	1210	1100	1170	.	.
30APR83	3.90	10.6	4.0	5.6	1230	1130	1209	.	.

-- REPORT YEAR=1983 MONTH=APRIL STATION LOCATION=C-BOX ELDER GULCH - WEST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01APR83	0.20	14.3	0.3	3.9	590	420	509	.	.
02APR83	0.14	.	.	.	.	.	.	.	.
03APR83	0.23	.	.	.	.	.	.	.	.
04APR83	0.23	.	.	.	.	.	.	.	.
05APR83	0.24	7.1	0.5	2.5	1050	930	982	.	.
06APR83	0.26	8.5	0.5	2.9	.	.	.	.	.
07APR83	0.31	7.4	0.5	2.6	.	.	.	.	.
08APR83	0.38	9.0	0.5	3.8	.	.	.	.	.
09APR83	0.53	16.8	0.4	5.1	.	.	.	.	.
10APR83	0.73	15.5	0.4	4.9	.	.	.	.	.
11APR83	0.89	12.8	0.4	4.4	.	.	.	.	.
12APR83	1.10	13.8	0.4	3.6	.	.	.	.	.
13APR83	1.70	7.8	0.5	2.2	1090	970	1045	.	.
14APR83	0.62	11.4	0.5	3.8	.	.	.	.	.
15APR83	1.30	15.2	0.5	4.0	.	.	.	.	.
16APR83	1.40	16.5	0.4	4.8	.	.	.	.	.
17APR83	1.70	17.9	0.4	5.5	.	.	.	.	.
18APR83	1.90	12.8	0.5	5.1	.	.	.	.	.
19APR83	2.40	13.2	2.3	6.0	1050	910	972	.	.
20APR83	2.90	10.8	3.3	6.5	1010	930	979	.	.
21APR83	3.70	12.8	3.8	6.9	980	850	955	.	.
22APR83	3.70	11.2	3.4	6.2	970	880	952	.	.
23APR83	3.80	13.6	3.8	7.3	.	.	.	.	.

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-- REPORT YEAR=1983 MONTH=APRIL STATION LOCATION=C-BOX ELDER GULCH - WEST

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
24APR83	5.3	13.7	3.8	7.2	.	.	.	.	.
25APR83	7.3	12.6	3.8	6.3	.	.	.	.	.
26APR83	8.2	12.4	3.2	6.2	1040	1000	1031	.	.
27APR83	7.4	10.0	4.7	6.4	1050	1000	1027	.	.
28APR83	7.6	9.7	5.2	6.6	1040	1010	1025	.	.
29APR83	7.6	10.8	4.2	6.3	1040	1010	1027	.	.
30APR83	7.9	.	.	.	1060	1010	1042	.	.

--- REPORT YEAR=1983 MONTH=APRIL STATION LOCATION=D-CORRAL GULCH - EAST --

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01APR83	0.70	13.0	7.2	8.9	1419	1409	1414	.	.
02APR83	0.70	12.9	6.2	8.8	1436	1376	1423	.	.
03APR83	0.66	13.4	6.7	8.5	1453	1413	1440	.	.
04APR83	0.66	11.7	6.7	8.1	1460	1420	1425	.	.
05APR83	0.70	11.7	6.9	8.2	1430	1400	1417	.	.
06APR83	0.70	12.5	6.5	8.4	1433	1423	1428	.	.
07APR83	0.75	13.2	6.7	8.4	1456	1196	1416	.	.
08APR83	0.79	12.4	7.0	8.4	1419	1209	1375	.	.
09APR83	0.77	13.7	6.9	9.2	1371	941	1266	.	.
10APR83	0.82	13.5	7.5	9.2	1224	854	1067	.	.
11APR83	0.69	12.5	6.2	8.9	1047	1037	1041	.	.
12APR83	0.72	13.7	6.9	8.9	1360	1060	1255	.	.
13APR83	0.74	11.2	6.2	7.9	1410	1240	1393	.	.
14APR83	0.75	12.9	6.2	8.5	1414	1214	1354	.	.
15APR83	0.79	13.7	6.5	9.0	1438	1178	1391	.	.
16APR83	0.84	14.5	5.5	9.2	1452	1142	1382	.	.
17APR83	1.00	16.0	5.0	9.3	1466	1206	1337	.	.
18APR83	1.70	14.0	4.0	7.9	1260	820	1136	.	.
19APR83	2.60	13.4	3.5	7.6	1210	780	1109	.	.
20APR83	3.00	12.9	3.5	7.8	1180	980	1095	.	.
21APR83	3.40	14.5	4.0	7.8	1100	810	1035	.	.
22APR83	3.90	11.7	3.2	7.0	1080	1040	1053	.	.
23APR83	4.70	15.9	3.5	8.4	1080	1000	1047	.	.
24APR83	5.60	17.0	3.0	8.5	1090	1040	1066	.	.
25APR83	6.90	15.5	2.5	7.2	.	.	.	.	.
26APR83	7.80	14.5	1.7	6.9	1090	1050	1071	.	.
27APR83	7.60	13.0	3.7	7.3	1100	1040	1073	.	.
28APR83	7.20	12.7	4.7	7.3	1090	1040	1069	.	.
29APR83	7.30	12.4	3.0	6.9	1140	1040	1075	.	.
30APR83	8.80	11.4	3.7	6.0	1090	1010	1058	.	.

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---- REPORT YEAR=1983 MONTH=MAY STATION LOCATION=B-CORRAL GULCH - WEST ----

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01MAY83	4.2	14.9	2.0	6.3	1230	1111	1206	.	.
02MAY83	4.7	13.1	2.4	6.8	1230	1100	1197	.	.
03MAY83	5.1	13.5	4.4	7.2	1320	1200	1226	.	.
04MAY83	6.1	14.4	4.4	8.0	1380	1230	1311	.	.
05MAY83	5.7	11.6	5.5	6.9	1410	1300	1374	.	.
06MAY83	6.3	.	.	.	.	.	.	.	.
07MAY83	6.6	.	.	.	.	.	.	.	.
08MAY83	7.4	.	.	.	.	.	.	.	.
09MAY83	9.1	.	.	.	.	.	.	.	.
10MAY83	9.7	.	.	.	.	.	.	.	.
11MAY83	11.0	.	.	.	.	.	.	.	.
12MAY83	11.0	.	.	.	.	.	.	.	.
13MAY83	11.0	.	.	.	.	.	.	.	.
14MAY83	11.0	.	.	.	.	.	.	.	.
15MAY83	11.0	.	.	.	.	.	.	.	.
16MAY83	11.0	.	.	.	.	.	.	.	.
17MAY83	11.0	.	.	.	.	.	.	.	.
18MAY83	11.0	.	.	.	.	.	.	.	.
19MAY83	12.0	.	.	.	.	.	.	.	.
20MAY83	12.0	.	.	.	.	.	.	.	.
21MAY83	14.0	.	.	.	.	.	.	.	.
22MAY83	16.0	.	.	.	.	.	.	.	.
23MAY83	16.0	.	.	.	.	.	.	.	.
24MAY83	17.0	.	.	.	.	.	.	.	.
25MAY83	18.0	.	.	.	.	.	.	.	.
26MAY83	26.0	.	.	.	.	.	.	.	.
27MAY83	30.0	.	.	.	.	.	.	.	.
28MAY83	32.0	.	.	.	.	.	.	.	.
29MAY83	30.0	.	.	.	.	.	.	.	.
30MAY83	35.0	.	.	.	.	.	.	.	.
31MAY83	78.0	.	.	.	.	.	.	.	.

--- REPORT YEAR=1983 MONTH=MAY STATION LOCATION=C-BOX ELDER GULCH - WEST --

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01MAY83	8.2	11.3	3.2	5.5	1060	1020	1044	.	.
02MAY83	9.0	12.1	1.0	5.8	1080	1030	1062	.	.
03MAY83	10.0	11.6	4.1	6.4	.	.	.	.	.
04MAY83	12.0	12.5	5.3	8.4	1230	1110	1213	.	.
05MAY83	13.0	10.3	5.5	7.0	1250	1150	1204	.	.
06MAY83	14.0	9.3	5.1	6.6	1240	1120	1198	.	.
07MAY83	13.0	12.7	4.4	7.1	1230	1140	1201	.	.
08MAY83	13.0	12.7	4.8	7.7	1210	1140	1172	.	.
09MAY83	14.0	12.6	5.3	7.7	1190	1100	1157	.	.
10MAY83	13.0	12.3	4.3	7.3	1170	1090	1137	.	.
11MAY83	16.0	7.9	4.8	5.9	1130	1090	1104	.	.

RIO BLANCO OIL SHALE COMPANY
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UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWG) MEASUREMENTS

--- REPORT YEAR=1983 MONTH=MAY STATION LOCATION=C-BOX ELDER GULCH - WEST --

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
12MAY83	17	8.9	4.4	5.9	1130	1020	1102	.	.
13MAY83	17	10.7	4.3	6.5	1140	1090	1097	.	.
14MAY83	17	7.5	4.4	5.8	1140	920	1012	.	.
15MAY83	16	9.9	2.0	6.1	1060	910	1020	.	.
16MAY83	16	7.9	3.5	5.4	.	.	.	.	.
17MAY83	16	8.3	3.9	5.7	.	.	.	.	.
18MAY83	17	9.9	4.6	6.7	.	.	.	.	.
19MAY83	19	9.0	5.0	6.5	1280	1230	1255	.	.
20MAY83	20	9.9	5.0	6.8	1320	1290	1308	.	.
21MAY83	22	12.1	5.3	7.7	1320	1280	1301	.	.
22MAY83	25	11.8	5.0	7.5	1290	1250	1279	.	.
23MAY83	28	12.2	5.1	7.8	1250	1200	1234	.	.
24MAY83	28	12.0	5.0	7.9	.	.	.	.	.
25MAY83	34	11.4	5.5	7.7	.	.	.	.	.
26MAY83	37	11.2	5.8	7.7	.	.	.	.	.
27MAY83	45	10.7	5.4	7.7	.	.	.	.	.
28MAY83	48	10.3	5.2	7.5	.	.	.	.	.
29MAY83	44	11.2	5.5	7.9	.	.	.	.	.
30MAY83	38	10.2	5.0	7.7	.	.	.	.	.
31MAY83	38	9.8	5.6	7.1	.	.	.	.	.

---- REPORT YEAR=1983 MONTH=MAY STATION LOCATION=D-CORRAL GULCH - EAST ----

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01MAY83	9.5	11.2	2.2	5.4	1090	990	1056	.	.
02MAY83	9.3	14.7	2.9	7.1	1110	1010	1088	.	.
03MAY83	11.0	14.4	3.0	7.2	1140	1080	1098	.	.
04MAY83	14.0	17.0	2.7	8.3	1200	1110	1172	.	.
05MAY83	16.0	13.0	4.5	8.1	1240	1040	1198	.	.
06MAY83	17.0	11.2	4.7	6.9	.	.	.	.	.
07MAY83	16.0	16.9	2.7	8.2	.	.	.	.	.
08MAY83	16.0	16.7	3.5	8.8	.	.	.	.	.
09MAY83	17.0	16.7	4.5	9.1	.	.	.	.	.
10MAY83	20.0	16.0	3.2	8.3	.	.	.	.	.
11MAY83	23.0	9.2	4.0	6.0	.	.	.	.	.
12MAY83	25.0	11.4	3.0	6.6	.	.	.	.	.
13MAY83	25.0	14.0	2.9	7.0	.	.	.	.	.
14MAY83	23.0	9.2	3.0	5.8	.	.	.	.	.
15MAY83	20.0	13.0	1.7	7.1	.	.	.	.	.
16MAY83	20.0	8.5	0.7	4.9	.	.	.	.	.
17MAY83	19.0	10.7	1.7	5.6	.	.	.	.	.
18MAY83	19.0	13.0	3.4	7.3	.	.	.	.	.
19MAY83	22.0	11.0	4.0	6.8	.	.	.	.	.
20MAY83	26.0	13.2	3.8	7.3	.	.	.	.	.
21MAY83	29.0	.	.	.	.	.	.	.	.
22MAY83	32.0	.	.	.	.	.	.	.	.

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---- REPORT YEAR=1983 MONTH=MAY STATION LOCATION=D-CORRAL GULCH - EAST ----

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
23MAY83	34	.	.	.	.	.	.	.	.
24MAY83	38	.	.	.	.	.	.	.	.
25MAY83	48	.	.	.	.	.	.	.	.
26MAY83	88	15.5	7.5	12.1	.	.	.	.	.
27MAY83	87	17.5	6.4	10.3	.	.	.	.	.
28MAY83	79	16.5	6.4	10.2	.	.	.	.	.
29MAY83	83	17.4	6.5	10.6	.	.	.	.	.
30MAY83	83	14.5	6.9	9.8	.	.	.	.	.
31MAY83	88	12.0	5.5	8.2	.	.	.	.	.

---- REPORT YEAR=1983 MONTH=JUNE STATION LOCATION=B-CORRAL GULCH - WEST ---

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JUN83	45.0	.	.	.	.	.	.	.	.
02JUN83	37.0	.	.	.	.	.	.	.	.
03JUN83	35.0	.	.	.	.	.	.	.	.
04JUN83	35.0	.	.	.	.	.	.	.	.
05JUN83	37.0	.	.	.	.	.	.	.	.
06JUN83	31.0	.	.	.	.	.	.	.	.
07JUN83	27.0	.	.	.	.	.	.	.	.
08JUN83	24.0	.	.	.	.	.	.	.	.
09JUN83	21.0	.	.	.	.	.	.	.	.
10JUN83	18.0	.	.	.	.	.	.	.	.
11JUN83	16.0	.	.	.	.	.	.	.	.
12JUN83	14.0	.	.	.	.	.	.	.	.
13JUN83	13.0	.	.	.	.	.	.	.	.
14JUN83	12.0	.	.	.	.	.	.	.	.
15JUN83	11.0	.	.	.	.	.	.	.	.
16JUN83	12.0	.	.	.	.	.	.	.	.
17JUN83	9.9	.	.	.	.	.	.	.	.
18JUN83	9.1	.	.	.	.	.	.	.	.
19JUN83	8.5	.	.	.	.	.	.	.	.
20JUN83	8.2	.	.	.	.	.	.	.	.
21JUN83	7.5	.	.	.	.	.	.	.	.
22JUN83	7.3	.	.	.	.	.	.	.	.
23JUN83	6.6	.	.	.	.	.	.	.	.
24JUN83	6.2	.	.	.	.	.	.	.	.
25JUN83	5.8	.	.	.	.	.	.	.	.
26JUN83	5.6	.	.	.	.	.	.	.	.
27JUN83	5.2	.	.	.	.	.	.	.	.
28JUN83	5.0	.	.	.	.	.	.	.	.
29JUN83	4.6	.	.	.	.	.	.	.	.
30JUN83	4.3	.	.	.	.	.	.	.	.

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-- REPORT YEAR=1983 MONTH=JUNE STATION LOCATION=C-BOX ELDER GULCH - WEST -

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JUN83	34.0	10.9	5.8	7.8	.	.	.	.	.
02JUN83	30.0	9.6	6.4	7.5	.	.	.	.	.
03JUN83	28.0	10.9	5.5	7.9	.	.	.	.	.
04JUN83	26.0	10.7	5.3	7.9	.	.	.	.	.
05JUN83	24.0	10.5	6.5	7.9	.	.	.	.	.
06JUN83	23.0	10.4	5.7	7.8	.	.	.	.	.
07JUN83	22.0	11.8	5.9	8.3	.	.	.	.	.
08JUN83	20.0	9.9	5.4	7.8	.	.	.	.	.
09JUN83	19.0	12.3	6.6	8.5	1140	980	1114	.	.
10JUN83	17.0	13.5	5.6	9.2	1150	980	1093	.	.
11JUN83	15.0	13.5	5.7	9.4	1130	1120	1121	.	.
12JUN83	14.0	.	.	.	.	.	.	.	.
13JUN83	13.0	.	.	.	.	.	.	.	.
14JUN83	12.0	12.0	5.4	8.6	1130	1100	1115	.	.
15JUN83	11.0	13.3	6.3	9.2	1130	1120	1123	.	.
16JUN83	10.0	14.8	6.9	9.9	1120	1110	1115	.	.
17JUN83	9.3	14.9	6.7	9.9	1120	1110	1112	.	.
18JUN83	8.4	15.9	7.3	10.5	1110	1090	1100	.	.
19JUN83	7.9	15.8	7.1	10.4	1100	1080	1090	.	.
20JUN83	7.0	16.0	7.0	10.5	1090	1070	1080	.	.
21JUN83	6.3	16.2	6.9	10.5	1080	1070	1076	.	.
22JUN83	6.1	16.8	6.9	10.7	1080	1060	1074	.	.
23JUN83	5.0	16.1	7.5	10.6	1080	1060	1070	.	.
24JUN83	4.4	15.7	7.4	11.0	1080	1050	1067	.	.
25JUN83	4.1	12.8	7.4	10.1	1100	1050	1065	.	.
26JUN83	3.9	13.8	7.4	10.0	1130	1020	1065	.	.
27JUN83	3.4	12.8	8.7	10.2	1070	1050	1060	.	.
28JUN83	3.0	.	.	.	.	.	.	.	.
29JUN83	2.6	.	.	.	.	.	.	.	.
30JUN83	2.3	.	.	.	.	.	.	.	.

---- REPORT YEAR=1983 MONTH=JUNE STATION LOCATION=D-CORRAL GULCH - EAST --

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SL
01JUN83	195.0	8.0	6.5	7.5	.	.	.	.	.
02JUN83	83.0	14.2	7.4	9.1	.	.	.	.	.
03JUN83	65.0	16.7	5.5	10.3	.	.	.	.	.
04JUN83	56.0	17.0	5.0	9.8	.	.	.	.	.
05JUN83	56.0	16.5	6.0	9.8	.	.	.	.	.
06JUN83	59.0	12.5	7.5	9.9	.	.	.	.	.
07JUN83	53.0	14.2	8.5	11.1	.	.	.	.	.
08JUN83	48.0	11.9	8.5	10.3	.	.	.	.	.
09JUN83	40.0	13.5	8.0	10.6	.	.	.	.	.
10JUN83	35.0	16.0	9.0	12.4	.	.	.	.	.
11JUN83	32.0	15.5	9.5	12.4	.	.	.	.	.
12JUN83	29.0	12.0	9.2	10.4	.	.	.	.	.

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---- REPORT YEAR=1983 MONTH=JUNE STATION LOCATION=D-CORRAL GULCH - EAST ----

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
13JUN83	24.0	11.4	7.0	9.0	.	.	.	.	.
14JUN83	19.0	18.4	5.5	10.6	.	.	.	.	.
15JUN83	19.0	18.9	5.0	11.5	.	.	.	.	.
16JUN83	20.0	17.9	6.0	11.6	.	.	.	.	.
17JUN83	18.0	20.7	6.5	12.1	1350	1240	1305	.	.
18JUN83	14.0	20.2	5.9	12.0	1310	1240	1288	.	.
19JUN83	14.0	18.7	6.2	11.4	1310	1250	1280	.	.
20JUN83	15.0	18.7	5.0	10.9	1310	1280	1297	.	.
21JUN83	13.0	18.5	4.0	10.1	1310	1280	1297	.	.
22JUN83	12.0	20.0	4.2	11.0	1310	1250	1293	.	.
23JUN83	11.0	18.5	4.9	10.4	.	.	.	.	.
24JUN83	10.0	16.7	6.2	10.2	.	.	.	.	.
25JUN83	9.8	15.0	5.7	9.1	.	.	.	.	.
26JUN83	9.5	15.2	4.7	8.9	.	.	.	.	.
27JUN83	8.7	13.9	6.2	9.3	.	.	.	.	.
28JUN83	7.4	.	.	.	.	.	.	.	.
29JUN83	6.9	.	.	.	.	.	.	.	.
30JUN83	6.6	19.5	7.5	12.6	.	.	.	.	.

---- REPORT YEAR=1983 MONTH=JULY STATION LOCATION=B-CORRAL GULCH - WEST ----

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JUL83	4.2	17.2	8.7	13.2	1380	1360	1367	.	.
02JUL83	4.0	19.2	7.6	11.8	1390	1350	1365	.	.
03JUL83	3.9	19.0	8.0	12.4	1380	1350	1370	.	.
04JUL83	3.8	19.5	6.2	11.6	1390	1350	1370	.	.
05JUL83	3.4	20.8	7.1	12.8	1390	1350	1370	.	.
06JUL83	3.4	21.5	8.8	13.5	1390	1350	1375	.	.
07JUL83	3.4	21.6	9.7	14.1	1400	1360	1380	.	.
08JUL83	3.2	20.0	9.6	13.2	1400	1360	1380	.	.
09JUL83	3.2	20.4	9.9	13.4	1400	1350	1380	.	.
10JUL83	3.1	20.1	8.8	13.0	1410	1370	1390	.	.
11JUL83	3.1	19.9	6.7	12.1	1410	1370	1390	.	.
12JUL83	3.0	19.7	7.2	12.7	1420	1380	1400	.	.
13JUL83	2.9	21.2	8.0	13.2	1420	1380	1400	.	.
14JUL83	2.9	19.6	7.9	12.5	1420	1400	1410	.	.
15JUL83	2.9	19.6	8.6	12.6	1420	1380	1400	.	.
16JUL83	2.8	20.2	7.6	12.6	1420	1360	1390	.	.
17JUL83	2.8	20.3	8.0	12.8	1410	1370	1390	.	.
18JUL83	2.6	20.9	8.7	13.8	1400	1360	1390	.	.
19JUL83	2.6	19.6	10.0	13.3	1400	1360	1380	.	.
20JUL83	2.6	20.8	10.5	13.7	1400	1350	1380	.	.
21JUL83	2.6	20.5	9.2	13.2	1400	1360	1380	.	.
22JUL83	2.6	19.7	9.8	13.0	1420	1320	1370	.	.
23JUL83	2.5	18.8	9.9	12.7	1410	1340	1370	.	.
24JUL83	2.4	22.1	8.6	13.8	1390	1350	1370	.	.

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DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
25JUL83	2.3	19.7	9.3	13.2	1390	1350	1380	.	.
26JUL83	2.3	20.7	9.8	13.9	1400	1370	1380	.	.
27JUL83	2.3	16.1	9.7	12.0	1430	1360	1400	.	.
28JUL83	2.1	21.8	8.9	13.6	1430	1390	1409	.	.
29JUL83	2.2	22.2	8.7	13.8	1430	1380	1403	.	.
30JUL83	2.2	21.2	9.0	13.8	1420	1380	1399	.	.
31JUL83	2.2	18.8	10.0	12.7	1420	1370	1396	.	.

-- REPORT YEAR=1983 MONTH=JULY STATION LOCATION=C-BOX ELDER GULCH - WEST --

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JUL83	2.10	.	.	.	.	.	.	.	.
02JUL83	2.00	.	.	.	.	.	.	.	.
03JUL83	1.70	.	.	.	.	.	.	.	.
04JUL83	1.50	.	.	.	.	.	.	.	.
05JUL83	1.40	.	.	.	.	.	.	.	.
06JUL83	1.10	.	.	.	.	.	.	.	.
07JUL83	1.10	.	.	.	.	.	.	.	.
08JUL83	0.98	.	.	.	.	.	.	.	.
09JUL83	0.91	.	.	.	.	.	.	.	.
10JUL83	0.82	.	.	.	.	.	.	.	.
11JUL83	0.72	.	.	.	.	.	.	.	.
12JUL83	0.64	.	.	.	.	.	.	.	.
13JUL83	0.48	.	.	.	.	.	.	.	.
14JUL83	0.41	.	.	.	.	.	.	.	.
15JUL83	0.35	.	.	.	.	.	.	.	.
16JUL83	0.31	.	.	.	.	.	.	.	.
17JUL83	0.26	.	.	.	.	.	.	.	.
18JUL83	0.22	.	.	.	.	.	.	.	.
19JUL83	0.18	.	.	.	.	.	.	.	.
20JUL83	0.14	.	.	.	.	.	.	.	.
21JUL83	0.15	.	.	.	.	.	.	.	.
22JUL83	0.15	.	.	.	.	.	.	.	.
23JUL83	0.23	.	.	.	.	.	.	.	.
24JUL83	0.13	.	.	.	.	.	.	.	.
25JUL83	0.09	.	.	.	.	.	.	.	.
26JUL83	0.07	.	.	.	.	.	.	.	.
27JUL83	0.10	.	.	.	1080	1000	1032	.	.
28JUL83	0.07	27.7	7.6	15.1	1110	1070	1089	.	.
29JUL83	0.04	27.7	6.6	12.8	1100	1040	1084	.	.
30JUL83	0.02	19.0	7.3	9.9	1100	1050	1088	.	.
31JUL83	0.01	.	.	.	.	.	.	.	.

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DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01JUL83	6.4	17.2	7.2	11.9	.	.	.	.	.
02JUL83	5.9	21.0	7.5	12.8	.	.	.	.	.
03JUL83	5.5	19.7	9.0	13.1	.	.	.	.	.
04JUL83	5.3	20.0	6.0	12.0	.	.	.	.	.
05JUL83	5.3	21.0	6.5	13.0	.	.	.	.	.
06JUL83	4.4	20.5	8.5	13.5	.	.	.	.	.
07JUL83	4.1	21.2	10.4	14.3	.	.	.	.	.
08JUL83	4.0	20.2	10.2	13.7	.	.	.	.	.
09JUL83	3.8	20.0	10.7	14.1	.	.	.	.	.
10JUL83	3.8	20.4	9.5	13.7	.	.	.	.	.
11JUL83	3.7	20.0	7.0	12.6	.	.	.	.	.
12JUL83	3.4	19.9	7.5	12.9	.	.	.	.	.
13JUL83	3.1	19.7	8.7	13.0	.	.	.	.	.
14JUL83	2.9	19.4	8.7	12.6	.	.	.	.	.
15JUL83	2.9	18.0	9.7	12.6	.	.	.	.	.
16JUL83	2.9	18.0	8.6	12.4	.	.	.	.	.
17JUL83	2.7	17.4	8.7	12.3	.	.	.	.	.
18JUL83	2.7	17.7	9.4	12.8	.	.	.	.	.
19JUL83	2.6	16.5	10.4	12.4	.	.	.	.	.
20JUL83	2.6	17.0	10.5	12.7	.	.	.	.	.
21JUL83	2.6	17.5	9.9	12.6	.	.	.	.	.
22JUL83	3.0	16.9	10.2	12.8	.	.	.	.	.
23JUL83	2.8	18.0	10.7	13.2	.	.	.	.	.
24JUL83	2.7	19.4	9.5	13.0	.	.	.	.	.
25JUL83	2.7	17.7	10.0	12.9	.	.	.	.	.
26JUL83	2.6	18.0	10.7	13.5	.	.	.	.	.
27JUL83	2.7	16.5	10.7	12.9	.	.	.	.	.
28JUL83	2.7	16.4	10.7	13.1	.	.	.	.	.
29JUL83	2.6	16.0	10.9	13.1	.	.	.	.	.
30JUL83	2.6	16.0	11.2	13.3	.	.	.	.	.
31JUL83	2.6	15.0	11.7	13.0	.	.	.	.	.

--- REPORT YEAR=1983 MONTH=AUGUST STATION LOCATION=G-CORRAL GULCH - WEST ---

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01AUG83	2.2	19.3	9.4	13.4	1410	1360	1391	.	.
02AUG83	2.2	17.5	9.7	12.7	1410	1370	1392	.	.
03AUG83	2.1	18.8	9.4	13.1	1410	1370	1388	.	.
04AUG83	2.0	17.1	9.7	12.5	1440	1370	1408	.	.
05AUG83	1.8	21.1	9.7	14.2	1450	1390	1425	.	.
06AUG83	1.5	22.7	9.9	14.6	1440	1400	1423	.	.
07AUG83	1.4	19.8	10.0	14.1	1440	1400	1421	.	.
08AUG83	1.4	21.9	10.2	14.1	1440	1390	1416	.	.
09AUG83	1.4	21.6	10.0	14.2	1440	1390	1414	.	.
10AUG83	1.4	22.3	10.0	15.0	1430	1390	1410	.	.
11AUG83	1.4	19.9	10.3	14.0	1430	1370	1405	.	.

RIO BLANCO OIL SHALE COMPANY
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UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWG) MEASUREMENTS

--- REPORT YEAR=1983 MONTH=AUGUST STATION LOCATION=B-CORRAL GULCH - WEST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
12AUG83	1.5	19.5	10.7	13.2	1430	1350	1401	.	.
13AUG83	1.5	21.0	10.1	14.4	1420	1380	1402	.	.
14AUG83	1.5	21.6	9.9	14.3	1420	1360	1395	.	.
15AUG83	1.4	22.8	10.9	15.0	1420	1370	1394	.	.
16AUG83	1.4	22.0	9.9	14.7	1420	1370	1395	.	.
17AUG83	1.4	21.5	10.0	14.3	1420	1370	1393	.	.
18AUG83	1.4	21.2	10.8	14.6	1410	1360	1390	.	.
19AUG83	1.4	20.3	9.9	13.8	1420	1370	1392	.	.
20AUG83	1.4	21.3	9.4	13.6	1410	1350	1389	.	.
21AUG83	1.4	21.1	8.4	13.2	1410	1360	1385	.	.
22AUG83	1.4	21.2	8.3	13.0	1410	1360	1383	.	.
23AUG83	1.3	20.6	7.6	12.6	1410	1360	1380	.	.
24AUG83	1.3	19.8	7.6	12.1	1410	1370	1388	.	.
25AUG83	1.3	20.5	8.2	12.9	1420	1370	1389	.	.
26AUG83	1.4	22.0	8.0	13.2	1420	1360	1387	.	.
27AUG83	1.4	20.8	8.2	12.6	1410	1360	1386	.	.
28AUG83	1.3	20.4	8.7	12.7	1410	1360	1389	.	.
29AUG83	1.3	18.0	9.2	12.6	1410	1350	1382	.	.
30AUG83	1.4	19.8	8.7	13.3	1400	1350	1375	.	.
31AUG83	1.3	20.0	8.5	12.7	1410	1350	1379	.	.

- REPORT YEAR=1983 MONTH=AUGUST STATION LOCATION=C-BOX ELDER GULCH - WEST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01AUG83	0	.	.	.	.	.	.	.	.
02AUG83	0	.	.	.	.	.	.	.	.
03AUG83	0	.	.	.	.	.	.	.	.
04AUG83	0	.	.	.	.	.	.	.	.
05AUG83	0	.	.	.	.	.	.	.	.
06AUG83	0	.	.	.	.	.	.	.	.
07AUG83	0	.	.	.	.	.	.	.	.
08AUG83	0	.	.	.	.	.	.	.	.
09AUG83	0	.	.	.	.	.	.	.	.
10AUG83	0	.	.	.	.	.	.	.	.
11AUG83	0	.	.	.	.	.	.	.	.
12AUG83	0	.	.	.	.	.	.	.	.
13AUG83	0	.	.	.	.	.	.	.	.
14AUG83	0	.	.	.	.	.	.	.	.
15AUG83	0	.	.	.	.	.	.	.	.
16AUG83	0	.	.	.	.	.	.	.	.
17AUG83	0	.	.	.	.	.	.	.	.
18AUG83	0	.	.	.	.	.	.	.	.
19AUG83	0	.	.	.	.	.	.	.	.
20AUG83	0	.	.	.	.	.	.	.	.
21AUG83	0	.	.	.	.	.	.	.	.
22AUG83	0	.	.	.	.	.	.	.	.

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FIELD WATER QUALITY (FWG) MEASUREMENTS

- REPORT YEAR=1983 MONTH=AUGUST STATION LOCATION=C-BOX ELDER GULCH - WEST --

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
23AUG83	0	.	.	.	.	.	.	.	.
24AUG83	0	.	.	.	.	.	.	.	.
25AUG83	0	.	.	.	.	.	.	.	.
26AUG83	0	.	.	.	.	.	.	.	.
27AUG83	0	.	.	.	.	.	.	.	.
28AUG83	0	.	.	.	.	.	.	.	.
29AUG83	0	.	.	.	.	.	.	.	.
30AUG83	0	.	.	.	.	.	.	.	.
31AUG83	0	.	.	.	.	.	.	.	.

--- REPORT YEAR=1983 MONTH=AUGUST STATION LOCATION=D-CORRAL GULCH - EAST ---

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01AUG83	2.8	15.9	11.5	13.6	.	.	.	.	.
02AUG83	2.7	15.0	12.0	13.3	.	.	.	.	.
03AUG83	2.7	15.5	12.0	13.7	.	.	.	.	.
04AUG83	2.8	15.8	11.5	13.2	1550.0	1530	1540	.	.
05AUG83	2.6	19.6	10.6	14.0	1540.0	1520	1534	.	.
06AUG83	2.3	19.5	10.7	13.8	1540.0	1520	1533	.	.
07AUG83	2.2	19.0	10.7	13.5	1550.0	1520	1528	.	.
08AUG83	2.1	18.3	10.7	13.2	1540.0	1510	1524	.	.
09AUG83	2.0	19.6	10.5	13.7	1540.0	1510	1529	.	.
10AUG83	1.9	19.0	10.8	13.9	1560.0	1520	1536	.	.
11AUG83	2.0	17.4	11.0	13.6	.	.	.	.	.
12AUG83	2.1	18.8	11.3	13.4	.	.	.	.	.
13AUG83	2.1	19.9	10.8	14.2	.	.	.	.	.
14AUG83	2.1	19.7	10.3	13.7	.	.	.	.	.
15AUG83	2.2	19.3	11.2	14.0	.	.	.	.	.
16AUG83	2.2	18.1	10.5	13.4	.	.	.	.	.
17AUG83	2.4	18.7	10.4	13.4	1600.0	1540	1549	.	.
18AUG83	2.4	17.9	11.2	13.5	1560.0	1520	1541	.	.
19AUG83	2.5	18.2	10.5	13.2	1550.0	1520	1538	.	.
20AUG83	2.4	18.4	10.2	13.1	1560.0	1530	1545	.	.
21AUG83	2.5	17.5	9.3	12.3	1550.0	1530	1542	.	.
22AUG83	2.5	17.7	9.1	12.3	1550.0	1540	1544	.	.
23AUG83	2.5	17.2	8.5	12.1	1560.0	1530	1545	.	.
24AUG83	2.6	16.6	8.4	11.7	1560.0	1540	1547	.	.
25AUG83	2.6	17.5	9.0	12.2	1560.0	1530	1547	.	.
26AUG83	2.6	18.0	9.0	12.3	1550.0	1530	1543	.	.
27AUG83	2.7	16.9	8.8	11.9	1550.0	1520	1540	.	.
28AUG83	2.7	16.8	9.5	12.1	1560.0	1540	1544	.	.
29AUG83	2.8	16.4	10.0	12.3	1560.0	1530	1542	.	.
30AUG83	2.8	18.8	9.6	12.9	1550.0	1520	1540	.	.
31AUG83	2.8	17.6	9.2	12.2	1560.3	1540	1553	.	.

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FIELD WATER QUALITY (F&G) MEASUREMENTS

- REPORT YEAR=1983 MONTH=SEPTEMBER STATION LOCATION=B-CORRAL GULCH - WEST

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01SEP83	1.3	17.2	8.4	12.4	1410	1360	1379	.	.
02SEP83	1.2	22.0	9.6	14.2	1450	1360	1402	.	.
03SEP83	1.3	21.6	9.1	13.4	1440	1360	1415	.	.
04SEP83	1.4	20.7	9.4	13.5	1430	1350	1398	.	.
05SEP83	1.3	19.6	7.3	12.0	1430	1390	1408	.	.
06SEP83	1.2	20.4	7.3	12.1	1430	1380	1401	.	.
07SEP83	1.3	19.5	7.2	12.0	1420	1360	1396	.	.
08SEP83	1.2	20.0	9.7	13.1	1460	1380	1409	.	.
09SEP83	1.2	20.4	8.4	12.6	1430	1370	1399	.	.
10SEP83	1.2	19.4	7.8	12.0	1420	1370	1394	.	.
11SEP83	1.2	18.9	6.4	11.2	1420	1370	1397	.	.
12SEP83	1.2	19.9	6.8	11.6	1420	1370	1388	.	.
13SEP83	1.3	19.5	6.9	11.5	1420	1360	1389	.	.
14SEP83	1.3	18.4	7.9	11.4	1410	1360	1390	.	.
15SEP83	1.3	18.8	7.2	11.1	1410	1340	1375	.	.
16SEP83	1.3	18.3	6.3	10.7	1420	1360	1381	.	.
17SEP83	1.3	18.5	7.3	11.2	1432	1382	1406	.	.
18SEP83	1.3	18.5	7.9	11.4	1434	1364	1407	.	.
19SEP83	1.3	15.6	5.5	10.2	1446	1376	1416	.	.
20SEP83	1.3	14.6	2.8	7.0	1428	1368	1406	.	.
21SEP83	1.4	15.5	3.1	7.7	1430	1390	1412	.	.
22SEP83	1.3	16.4	3.9	8.6	1422	1372	1408	.	.
23SEP83	1.3	14.7	6.2	9.6	1424	1364	1393	.	.
24SEP83	1.3	15.9	7.8	10.7	1426	1356	1390	.	.
25SEP83	1.3	17.8	6.6	10.4	1438	1358	1393	.	.
26SEP83	1.3	17.0	6.6	10.6	1440	1380	1410	.	.
27SEP83	1.3	15.7	7.2	10.5	1432	1372	1406	.	.
28SEP83	1.3	16.2	5.9	9.7	1474	1394	1424	.	.
29SEP83	1.3	14.7	6.9	10.1	1466	1396	1428	.	.
30SEP83	1.3	13.1	6.6	9.1	1448	1388	1419	.	.

REPORT YEAR=1983 MONTH=SEPTEMBER STATION LOCATION=C-BOX ELDER GULCH - WES

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01SEP83	0	.	.	.	.	.	.	.	.
02SEP83	0	.	.	.	.	.	.	.	.
03SEP83	0	.	.	.	.	.	.	.	.
04SEP83	0	.	.	.	.	.	.	.	.
05SEP83	0	.	.	.	.	.	.	.	.
06SEP83	0	.	.	.	.	.	.	.	.
07SEP83	0	.	.	.	.	.	.	.	.
08SEP83	0	.	.	.	.	.	.	.	.
09SEP83	0	.	.	.	.	.	.	.	.
10SEP83	0	.	.	.	.	.	.	.	.
11SEP83	0	.	.	.	.	.	.	.	.
12SEP83	0	.	.	.	.	.	.	.	.

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWQ) MEASUREMENTS

REPORT YEAR=1983 MONTH=SEPTEMBER STATION LOCATION=C-BOX ELDER GULCH - WEST

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
13SEP83	0	.	.	.	.	.	.	.	.
14SEP83	0	.	.	.	.	.	.	.	.
15SEP83	0	.	.	.	.	.	.	.	.
16SEP83	0	.	.	.	.	.	.	.	.
17SEP83	0	.	.	.	.	.	.	.	.
18SEP83	0	.	.	.	.	.	.	.	.
19SEP83	0	.	.	.	.	.	.	.	.
20SEP83	0	.	.	.	.	.	.	.	.
21SEP83	0	.	.	.	.	.	.	.	.
22SEP83	0	.	.	.	.	.	.	.	.
23SEP83	0	.	.	.	.	.	.	.	.
24SEP83	0	.	.	.	.	.	.	.	.
25SEP83	0	.	.	.	.	.	.	.	.
26SEP83	0	.	.	.	.	.	.	.	.
27SEP83	0	.	.	.	.	.	.	.	.
28SEP83	0	.	.	.	.	.	.	.	.
29SEP83	0	.	.	.	.	.	.	.	.
30SEP83	0	.	.	.	.	.	.	.	.

- REPORT YEAR=1983 MONTH=SEPTEMBER STATION LOCATION=D-CORRAL GULCH - EAST -

DATE	GM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
01SEP83	2.9	17.5	9.2	12.1	1570	1530	1555	.	.
02SEP83	3.0	17.7	10.0	13.2	1590	1540	1564	.	.
03SEP83	3.2	18.1	9.8	12.6	1790	1560	1575	.	.
04SEP83	3.6	17.9	10.1	13.0	1610	1340	1493	.	.
05SEP83	3.3	17.1	8.6	12.0	1530	1500	1510	.	.
06SEP83	3.3	17.6	8.6	12.0	1550	1500	1545	.	.
07SEP83	3.3	16.7	8.5	11.6	1560	1540	1551	.	.
08SEP83	3.2	17.4	10.3	12.5	1570	1520	1551	.	.
09SEP83	3.2	17.3	9.7	12.2	1550	1490	1539	.	.
10SEP83	3.2	16.5	9.4	12.0	1540	1460	1505	.	.
11SEP83	3.2	16.1	8.4	11.4	1560	1410	1520	.	.
12SEP83	3.1	16.8	8.4	11.6	1550	1520	1539	.	.
13SEP83	3.1	16.3	8.6	11.5	1560	1500	1544	.	.
14SEP83	3.2	15.9	9.6	11.9	1560	1500	1542	.	.
15SEP83	3.1	16.1	8.8	11.5	1560	1510	1544	.	.
16SEP83	3.1	15.9	8.2	11.2	1600	1540	1570	.	.
17SEP83	3.0	15.9	8.8	11.3	1590	1560	1574	.	.
18SEP83	3.0	16.2	9.1	11.4	1580	1560	1574	.	.
19SEP83	3.0	15.3	8.1	11.0	1580	1530	1567	.	.
20SEP83	2.9	14.0	6.6	9.3	1590	1530	1565	.	.
21SEP83	2.9	14.5	7.0	9.7	1580	1540	1569	.	.
22SEP83	2.9	14.9	7.2	10.1	1590	1540	1569	.	.
23SEP83	3.0	14.0	8.4	10.4	1620	1560	1582	.	.
24SEP83	2.9	14.9	9.3	11.2	1600	1580	1590	.	.

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ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATION DATA
FIELD WATER QUALITY (FWQ) MEASUREMENTS

- REPORT YEAR=1983 MONTH=SEPTEMBER STATION LOCATION=D-CORRAL GULCH - EAST

DATE	QM	THI	TLOW	TM	CHI	CLOW	CM	SSM	SLM
25SEP83	2.9	15.8	6.1	10.9	1600	1570	1586	.	.
26SEP83	2.9	15.1	8.5	11.0	1610	1570	1589	.	.
27SEP83	2.9	14.8	9.3	11.3	1600	1570	1586	.	.
28SEP83	2.8	14.7	8.3	10.7	1590	1570	1583	.	.
29SEP83	2.7	13.6	8.7	10.8	1600	1580	1591	.	.
30SEP83	2.6	12.9	9.0	10.3	1610	1580	1594	.	.

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WATER CHEMISTRY DATA

SAMPLE MONTH=MAY REPORT YEAR=1983 STATION LOCATION=B-CORRAL GULCH - WEST

OBS	DATE	FLOW	TURB 70	TURB 76	COLOR	SPCOND	DO	BOD	COD	PH	CA2	ALK	HCO3	CCO3	OILS 50	OILS 60	NITRATE	NITRIDE	TOR GAS	TOR GAS	NH3	NH3	NO2 NO3	NO2 NO3	KJEL 62	KJEL 63	KJEL 65	KJEL 62	TN 02	TN 03
1	03MAY83	4.6	.	.	.	1250	8.9	.	.	8.4	.	327	.	.	.	.	.	4.4	.	0.61	0.12	.	.	-0.02	0.7	.	.			
2	27MAY83	26.0	.	.	.	1440	8.7	.	.	8.1	.	343	.	.	.	.	.	7.5	.	1.20	0.13	.	.	-0.02	1.3	.	.			

OBS	NO2 NO3	TP	TP	TOTIS	DISP	DORT HOP	TOC	DOC	DOC	SUSP	CYAN	TDS	HARD	HARD	CA	MG	NA	SAR	PERCENT NA	CL	NO3	CL	SO4	FL	SIO2	ABS	BEI	BIS
1	3.7	.	0.06	.	0.03	0.02	.	.	.	.	.	.	590	263	120	70	86	1.6	24	.	1.7	11	360	0.3	23	5	.	.	.
2	6.2	.	0.06	.	0.02	0.02	.	.	.	.	.	.	698	355	150	78	87	1.5	21	.	3.6	16	470	0.2	22	.	.	.	.

OBS	BOD	COD	CORD	FLUOR	PBOR	MNOL	NAIG	VAN	ZNNL	SALE	AGIE	GLIR	LSIR	STIR	ZNRR	OILDS	TOTCOLI	FECOLI	PHENOL	TDS	TDS	NH3	NO3	NO2	BORG	HARD	SIO2
1	90	.	.	.	-3	.	.	40	.	.	-6	.	.	.	.	.	9	.	.	.	.	.	.	.	962	870	0.09	.	.	.	-0.1	2100
2	80	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1035	0.10	.	.	.	.	2200

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WATER CHEMISTRY DATA

SAMPLE MONTH=MAY REPORT YEAR=1983 STATION LOCATION=C-BOX ELDER GULCH - WEST

OBS	DATE	FLOW	TURB 706	TURB 70	SPCOND	DO	BOD	COD	PH	CA02	ALK	HCO3	COL 55	COL 55	NO3-N	NO2-N	TOTP	ORTHO	NH3-N	NH3-N	NO2-N	NO3-N	KJEL 623	KJEL 625	TNN 203	NO3-N	IPO4	OPO4	TOTP	DISP	DORTHO	TOC	SUSP	CYANIDE	TDS	HARD	NCAR
3	03MAY83	9.5	.	.	.	1090	9.2	.	.	8.2	.	325	.	.	.	.	.	3.4	.	0.49	0.14	.	.	-0.02	0.6	.	.	2.8	.	0.06	.	0.02	0.02	.	.	.	.	.	498	173
4	27MAY83	48.0	.	.	.	1120	8.8	.	.	8.3	.	327	.	.	.	.	.	6.3	.	1.00	0.13	.	.	-0.02	1.1	.	.	5.2	.	0.06	.	0.02	0.02	.	.	.	.	.	574	247

OBS	CA	MG	NA	SAR	PERCENT NA	SODIUM	CL	SO4	F	SIO2	ALKB	ALKE	BICB	CO3	CRUE	FEB	PMN	MOL	NAIG	VAN	ZNL	SALF	GLIE	LSI	TZIR	OCDR	TOTCOLI	FECOLI	PHENOL	PCB	TDS	TOS	TOS	NH3	NO3	NO2	BORG	HG	SR
3	98	61	67	1.3	23	.	0.9	11	280	0.3	21	6	.	.	.	70	.	.	.	6	.	.	50	.	.	6	.	.	.	.	.	.	.	.	.	.	.	9	.	.	.	.	.	.	.	.	.	.	.	.	819	749	0.11	.	.	.	-0.1	1500
4	120	66	75	1.4	22	.	3.3	15	330	0.3	21	.	.	.	.	70	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	852	0.10	.	.	.	.	1900

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
WATER CHEMISTRY DATA

SAMPLE MONTH=MAY REPORT YEAR=1983 STATION LOCATION=D-CORRAL GULCH - EAST

OBS	DATE	FLOW	TURB 70	TUR 06	COLOR	SP_COND	DO	BOD	COD	PH	CO2	ALK	HCO3	CO3	OIL 550	OIL 560	NO3_TOT	NO3_DIS	TOR_GN	TOR_GN	NH3	NH3_DIS	NO2_DIS	NO3_DIS	KJEL 623	KJEL 625	TN NO2 NO3
5	03MAY83	0.11	.	.	.	1130	7.8	.	.	8.4	.	297	.	.	.	.	.	3.2	.	0.51	0.12	.	.	-0.02	0.6	.	.
6	27MAY83	0.56	.	.	.	1170	8.1	.	.	8.4	.	318	.	.	.	.	.	6.3	.	1.90	0.08	.	.	-0.02	2.0	.	.

OBS	NO2 NO3	TP_04	O_PO4	TOT_P	DIS_P	DORT_P	TOC	DOC	SUSP_COD	CYAN_IDE	THS	HS	TOT_HARD	NCH_ARD	CA	MG	NA	SAR	PER_NAK	NA_K	K	CL	SO4	F	SIO2	ABS	BEI	BI
5	2.6	.	0.09	.	0.03	0.03	.	11	.	.	.	.	503	206	95	64	84	1.7	27	.	1.8	12	300	0.3	23	6	.	.	.
6	4.3	.	0.09	.	0.02	0.03	.	.	.	.	.	.	523	205	110	60	60	1.2	20	.	2.4	17	280	0.3	22	.	.	.	.

OBS	BOD	COD	CRU	FEB	PBN	MOL	NIG	AVN	ZNN	SLA	AGE	GIE	LSI	TIR	ZOR	OCDOLI	TCOLI	FCOLI	PHENOL	OCB	PTDS	TDS_2	TDS_3	NH3	NO3	NO2	BOR	HG	SR
5	90	.	.	.	5	.	.	50	.	.	8	.	.	.	.	.	8	.	.	.	.	.	732	760	0.09	.	.	-0.01	-0.1	1800
6	70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	744	0.06	.	.	.	.	1500

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
WATER CHEMISTRY DATA

SAMPLE MONTH=AUGUST REPORT YEAR=1983 STATION LOCATION=B-CORRAL GULCH - WEST

OBS	DATE	FLOW	TURB 70	TURB 76	COLOR	SPCOND	CA	MG	NA	K	CL	SO4	F	BOR	COD	ALK	HCO3	OIL 55	OIL 56	NTU	TDS	TOC	NO2 NO3	NH3	TKN	NO3	NO2	KJEL 63	KJEL 62	TN 23	TP 04	PO4	TOC	TOC	TOC	ORTHO P	SUSP	SAN	TOC	HARD	NCH
7	10AUG83	1.5	.	.	.	1430	8.9	.	.	8.4	.	314	.	.	.	.	.	.	6	.	0.65	0.06	.	.	-0.02	0.7	.	.	5.3	.	0.06	.	0.02	0.02	.	.	.	.	.	.	611	297

OBS	CAG	MGA	NA	SAR	PERNA	NAK	KL	SO4	F	SIO2	ABS	BEI	BIB	CDR	CRU	CEB	PMN	MOL	NIG	AVN	ZNL	SAE	GEI	GLE	SEI	TIR	TOCOR	FCOLI	PCOLI	PHENOL	PCB	TDS2	TDS3	NH3	NO3	NO2	BRG	HARD	SAR
7	120	75	100	1.8	26	.	1.2	18	450	0.2	21	4	88	.	.	90	.	.	.	3	.	-1	25	2	.	.	5	.	.	.	.	35	.	.	.	.	.	.	.	.	976	0.05	.	.	.	.	2400

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
WATER CHEMISTRY DATA

SAMPLE MONTH=AUGUST REPORT YEAR=1983 STATION LOCATION=D-CORRAL GULCH - EAST

OBS	DATE	FLOW	TURB 70	TURB 76	COLOR	SP COND	DO	BOD	COD	PH	CA2	ALK	HCO3	CO3	OIL 505	OIL 506	NITRO DIST	TOTAL NITRO	ORGANIC N	NH3	NO2 NO3	NO2 NO3	KJELD 623	KJELD 625	TNO23
8	10AUG83	2.0	4	.	.	1560	70.0	.	.	8.1	.	458	.	.	.	.	.	2.8	.	1.40	0.05	.	.	-0.02	1.4	.	.
9	17AUG83	3.1	.	.	.	1600	7.5	.	6.3	7.9	.	463	.	.	.	.	.	2.3	.	0.81	0.12	.	.	-0.02	0.9	.	.

OBS	NO2 NO3	TP	TP	TOT	DISS	DORT HOP	TDS	SUSP SOLIDS	CYANIDE	TH	TOTAL HARD	CA	MG	NA	SAR	PERCENT NA	NA	CL	SO4	FL	SIO2	ABS	BEI
8	1.4	.	.	.	0.04	-0.01	.	.	.	.	529	71	82	78	170	3.3	41	.	1.9	13	430	0.5	23	6	84	.	.
9	1.4	.	0.06	.	0.06	0.02	.	.	.	.	535	72	86	77	170	3.3	41	.	1.8	13	440	0.5	22	6	.	.	.

OBS	BOR	CD	CR	CU	FE	PB	MN	MOL	NIG	ALG	VAN	ZNN	SLE	AGE	GLI	SEI	STR	ZIR	OCD	TOL	FCL	PHENOL	PCB	TDS	TDS 2	TDS 3	NH3	NO3	NO2	BOR	HG	SR
8	160	.	.	.	10	.	58	36	2	.	.	4	.	.	.	.	39	.	.	.	.	.	.	.	.	1076	0.04	.	.	.	.	2500
9	160	.	.	.	8	.	.	40	.	.	-6	.	.	.	.	.	.	3	.	.	.	.	.	1130	1091	0.09	.	.	.	-0.1	2500

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=6-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: OM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=989 MSE=0.163216

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=42.1543

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		1.4203	161	1983
	B		0.4116	73	1975
	B				
C	B		0.3150	109	1982
C	B				
C	B		0.3001	180	1978
C	B				
C	B	D	0.2791	158	1979
C	B	D			
C	B	D	0.2456	90	1980
C		D			
C		D	0.1368	157	1976
C		D			
C		D	0.1239	82	1981
		D			
		D	0.0914	7	1977

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=989 MSE=6.5476

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=42.1543

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	13.556	82	1981
	B	12.254	157	1976
	C	10.195	73	1975
	C			
	C	9.708	180	1978
	C			
D	C	9.232	109	1982
D				
D		8.295	161	1983
D				
D		8.137	156	1979
	E	3.277	90	1980
	E			
	E	2.214	7	1977

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
FIELD WATER QUALITY (F.Q) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - .EST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=989 MSE=25908

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=42.1543

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	1224.6	161	1983
	E	1154.8	90	1980
	B			
	B	1117.0	82	1981
	B			
	B	1103.2	109	1982
	C	1031.2	158	1979
	C			
	C	1007.0	180	1978
	C			
D	C	979.9	73	1975
D				
D	E	931.3	157	1976
	E			
	E	896.7	7	1977

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWG) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: GM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=989 MSE=0.163216

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=217.474

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	0.63327	364	SUMMER
B	0.42226	177	SPRING
B			
B	0.37474	333	FALL
C	0.10846	143	WINTER

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=989 MSE=6.5476

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=217.474

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	14.792	364	SUMMER
B	8.341	177	SPRING
C	7.259	333	FALL
D	1.307	143	WINTER

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=989 MSE=25908

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=217.474

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	1129.0	143	WINTER
B	1086.1	333	FALL
B			
B	1077.5	364	SUMMER
C	936.8	177	SPRING

RIO BLANCO OIL SHALE COMPANY
ENVIRONMENTAL HYDROLOGY MONITORING PROGRAM
UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=6-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        3
Q = HYPOTHESIS DF  =        8
NE= DF OF E        =      989
S = MIN(P,Q)       =        3
M = .5(ABS(P-Q)-1) =      2.0
N = .5(NE-P-1)     =    492.5
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              2.55086506

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

            F(24,2957) =   104.76      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        1.18383795

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

            F(24,2967) =    80.58      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.18689136

        W = -(NE-.5(P-Q+1))*LN(L)          =        1662.1327
        U = NE-.5(P-Q+1)                   =         991.0000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =           2.9003
        B = (P*Q-2)/4                      =           5.5000

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

            F(24,2963) =    93.41      PROB > F = 0.0001
```

RIO BLANCO OIL SHALE COMPANY
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UNITED STATES GEOLOGICAL SURVEY GAUGING STATIONS
FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 1.62712992

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(8,989) = 201.15 (UPPER BOUND)

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL SEASON EFFECT

```
H = TYPE I SS&CP MATRIX FOR: SEASON
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        3
Q = HYPOTHESIS DF  =        3
NE= DF OF E        =      989
S = MIN(P,Q)       =        3
M = .5(ABS(P-Q)-1) =     -0.5
N = .5(NE-P-1)     =    492.5
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              2.85397949

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(9,2957) =   312.56      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        0.89438998

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(9,2967) =   140.03      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.22833149

        W = -(NE-.5(P-Q+1))*LN(L)          =        1459.9718
        U = NE-.5(P-Q+1)                   =         968.5000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =           2.4337
        B = (P*Q-2)/4                      =           1.7500

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

              F(9,2402) =   222.79      PROB > F = 0.0001
```

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=B-CORRAL GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL SEASON EFFECT

ROY'S MAXIMUM ROOT CRITERION = 2.66270250

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(3,989) = 877.80 (UPPER BOUND)

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FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=C-50X ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=322 MSE=11.5504

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=4.89583

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	6.8937	73	1983
B	1.5800	63	1979
B B	1.5471	58	1975
B B	1.1944	87	1978
B B	0.6700	2	1977
B B	0.4671	31	1976
B B	0.4474	23	1982
B	0.0000	1	1981

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STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=322 MSE=6.41892

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=4.89583

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	RPTYR
	A		15.500	2	1977
	A				
B	A		13.300	1	1981
B	A				
B	A	C	12.155	31	1976
B		C			
B		C	11.054	63	1979
B		C			
B		C	11.005	58	1975
		C			
		C	9.526	23	1982
		C			
		C	9.253	87	1978
	D		5.640	73	1983

RIO BLANCO OIL SHALE COMPANY
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STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTwISE ERROR RATE.

ALPHA=0.05 DF=322 MSE=31648.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=4.89583

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	8630.0	1	1981
B	856.3	73	1983
B			
B	758.1	63	1979
B			
B	754.6	23	1982
B			
B	751.7	58	1975
B			
B	658.7	31	1976
B			
B	641.3	87	1978
C	209.5	2	1977

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: GM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=322 MSE=11.5504

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.63439

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	2.7411	212	SPRING
A			
A	2.0604	117	SUMMER
A			
A	0.0640	5	WINTER
A			
A	0.0075	4	FALL

RIO BLANCO OIL SHALE COMPANY
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FIELD WATER QUALITY (FWQ) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=322 MSE=6.41892

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.63439

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	12.568	117	SUMMER
A			
A	11.875	4	FALL
B	7.885	212	SPRING
C	0.400	5	WINTER

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STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=322 MSE=31648.2

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=8.63439

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	2547.8	4	FALL
B	757.1	117	SUMMER
B			
B	739.4	212	SPRING
C	194.8	5	WINTER

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STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        3
Q = HYPOTHESIS DF  =        7
NE= DF OF E        =      322
S = MIN(P,Q)       =        3
M = .5(ABS(P-Q)-1) =      1.5
N = .5(NE-P-1)     =    159.0
```

HOTELLING-LAWLEY TRACE = TR(E**-1*H) = 12.20863156

F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
WITH S(2M+S+1) AND 2(S*N+1) DF

F(21,956) = 185.26 PROB > F = 0.0001

PILLAI'S TRACE V = TR(H*INV(H+E)) = 1.59525392

F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
WITH S(2M+S+1) AND S(2N+S+1) DF

F(21,966) = 52.24 PROB > F = 0.0001

WILKS' CRITERION L = DET(E)/DET(H+E) = 0.03062518

```
W = -(NE-.5(P-Q+1))*LN(L)          =   1127.6992
U = NE-.5(P-Q+1)                   =    323.5000
Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =     - 2.8715
B = (P*Q-2)/4                      =      4.7500
```

F APPROXIMATION = (U*Z-25)/(P*Q)*(1-L**1/Z)/L**1/Z
WITH P*Q AND U*Z-28 DF

F(21,919) = 103.63 PROB > F = 0.0001

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STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 10.45240781

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(7,322) = 480.81 (UPPER BOUND)

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STATION LOCATION=C-BOX ELDER GULCH - WEST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL SEASON EFFECT

```
H = TYPE I SS&CP MATRIX FOR: SEASON
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        3
Q = HYPOTHESIS DF  =        3
NE= DF OF E        =      322
S = MIN(P,Q)       =        3
M = .5(ABS(P-Q)-1) =     -0.5
N = .5(NE-P-1)     =    159.0
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              1.08325523

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(9,956) =     38.36      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        0.65766087

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(9,966) =     30.14      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.43561204

        W = -(NE-.5(P-Q+1))*LN(L)          =         267.1675
        U = NE-.5(P-Q+1)                   =         321.5000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =           2.4337
        B = (P*Q-2)/4                      =           1.7500

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

              F(9,778) =     35.22      PROB > F = 0.0001
```

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GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL SEASON EFFECT

ROY'S MAXIMUM ROOT CRITERION = 0.83292529

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(3,322) = 89.40 (UPPER BOUND)

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FIELD WATER QUALITY (FWG) DATA MULTIVARIATE ANALYSIS OF VARIANCE
STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: GM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=2214 MSE=1.15451

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=205.686

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	3.6558	264	1979
B	2.5053	174	1983
B			
B	2.4697	330	1978
C	1.1768	189	1975
D	0.9494	82	1980
D			
D	0.9245	337	1981
E	0.6792	331	1982
E			
E	0.5427	216	1976
F	0.3187	324	1977

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=2214 MSE=2.28924

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=205.686

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	14.114	264	1979
	B	10.735	330	1978
	C	10.339	189	1975
	D	9.940	216	1976
	D			
E	D	9.701	337	1981
E				
E		9.579	331	1982
	F	9.151	174	1983
	F			
	F	9.002	324	1977
	G	8.165	82	1980

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=2214 MSE=10152.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=205.686

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	1454.6	337	1981
A			
A	1453.1	82	1980
B	1376.9	331	1982
B			
B	1376.2	174	1983
C	1318.1	264	1979
D	1249.9	189	1975
E	1226.2	330	1978
E			
E	1207.0	216	1976
F	1152.5	324	1977

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=2214 MSE=1.15451

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=558.135

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	1.8947	600	SPRING
B	1.7386	570	SUMMER
C	1.2127	588	FALL
D	0.8840	489	WINTER

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=2214 MSE=2.28924

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=558.135

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	13.203	570	SUMMER
B	10.034	588	FALL
B			
B	10.014	600	SPRING
C	7.268	489	WINTER

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CM
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=2214 MSE=10152.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=558.135

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SEASON
A	1326.8	469	WINTER
A			
A	1324.7	588	FALL
B	1288.8	600	SPRING
C	1274.6	570	SUMMER

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        3
Q = HYPOTHESIS DF  =        8
NE= DF OF E        =     2214
S = MIN(P,Q)       =        3
M = .5(ABS(P-Q)-1) =      2.0
N = .5(NE-P-1)     =   1105.0
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              3.01772438

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

             F(24,6632) =   277.97      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        1.33978174

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

             F(24,6642) =   223.33      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.14418550

        W = -(NE-.5(P-Q+1))*LN(L)          =        4291.6266
        U = NE-.5(P-Q+1)                   =        2216.0000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =           2.9000
        B = (P*Q-2)/4                      =           5.5000

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

             F(24,6416) =   253.92      PROB > F = 0.0001
```

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 1.73401365

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(8,2214) = 479.89 (UPPER BOUND)

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL SEASON EFFECT

```
H = TYPE I SS&CP MATRIX FOR: SEASON
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        3
Q = HYPOTHESIS DF  =        3
NE= DF OF E        =     2214
S = MIN(P,Q)       =        3
M = .5(ABS(P-Q)-1) =     -0.5
N = .5(NE-P-1)     =   1105.0
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =              1.79602936

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(9,6632) =  441.16      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        0.69302043

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(9,6642) =   221.70      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.34437476

        W = -(NE-.5(P-Q+1))*LN(L)          =        2359.6459
        U = NE-.5(P-Q+1)                   =        2213.5000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =           2.4337
        B = (P*Q-2)/4                      =           1.7500

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

              F(9,5383) =   328.78      PROB > F = 0.0001
```

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STATION LOCATION=D-CORRAL GULCH - EAST

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL SEASON EFFECT

ROY'S MAXIMUM ROOT CRITERION = 1.73462397

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(3,2214) = 1280.15 (UPPER BOUND)

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SP_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=281372

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	1776.0	5	1979
A			
A	1691.0	5	1981
A			
A	1434.3	15	1982
A			
A	1130.0	1	1983
A			
A	1123.1	16	1980

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MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=.0645673

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	8.4000	1	1983
A			
A	8.3200	5	1979
A			
A	8.1000	15	1982
A			
A	8.0800	5	1981
A			
A	7.9625	16	1980

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MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=49657.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	552.00	5	1979
A			
A	522.00	5	1981
A			
A	485.87	15	1982
A			
A	354.31	16	1980
A			
A	297.00	1	1983

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: DOC
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=28.4746

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	18.994	16	1980
	A			
B	A	11.820	5	1979
B	A			
B	A	11.000	1	1983
B				
B		6.700	5	1981
B				
B		6.620	15	1982

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=401.694

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	95.000	1	1983
A			
A	71.200	5	1981
A			
A	68.400	5	1979
A			
A	68.067	15	1982
A			
A	64.063	16	1980

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=454.29

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	78.000	5	1979
A			
A	70.800	5	1981
A			
A	65.467	15	1982
A			
A	64.000	1	1983
A			
A	50.862	16	1980

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=10726.6

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	250.80	5	1981
A			
A	232.80	5	1979
A			
A	191.40	15	1982
A			
A	123.85	16	1980
A			
A	84.00	1	1983

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GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: K
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=6.43072

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	2.9687	16	1980
A			
A	2.2200	5	1981
A			
A	2.0600	5	1979
A			
A	2.0333	15	1982
A			
A	1.8000	1	1983

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=345.123

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	38.780	5	1981
A			
A	31.320	5	1979
A			
A	21.380	15	1982
A			
A	13.837	16	1980
A			
A	12.000	1	1983

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=11232.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	388.00	5	1979
A			
A	356.00	5	1981
A			
A	335.67	15	1982
A			
A	300.00	1	1983
A			
A	251.67	16	1980

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=0.10617

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.88000	5	1979
	A			
B	A	0.82000	5	1981
B	A			
B	A	0.54667	15	1982
B	A			
B	A	0.42500	16	1980
B				
B		0.30000	1	1983

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: B
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=17766

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=3.26975

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	240.00	5	1981
A			
A	224.00	5	1979
A			
A	222.00	15	1982
A			
A	165.63	16	1980
A			
A	90.00	1	1983

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SP_COND
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTwISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=281372

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	STAT
	A	2311.4	7	255
	B	1356.4	22	242
	D			
C	B	1075.0	8	235
C				
C		666.0	5	240

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: PH
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=.0645673

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	8.5571	7	255
A			
A	8.3000	8	235
B	7.9000	5	240
B			
B	7.8864	22	242

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: ALK
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=49657.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	884.29	7	255
B	404.86	22	242
B B	298.50	8	235
B B	227.80	5	240

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: DOC
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=28.4746

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	STAT
	A	16.914	7	255
	A			
B	A	14.600	5	240
B				
B		11.050	22	242
B				
B		9.037	8	235

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=401.694

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	83.375	8	235
A			
A	77.364	22	242
B.	55.600	5	240
C	27.429	7	255

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MG
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=454.29

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	STAT
	A	72.143	7	255
	A			
	A	66.227	22	242
	A			
B	A	57.875	8	235
B				
B		35.760	5	240

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: NA
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=10726.6

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	472.71	7	255
B	145.14	22	242
B			
B	78.00	8	235
B			
B	45.72	5	240

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: K
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=6.43072

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	4.2857	7	255
A			
A	4.2800	5	240
A			
A	1.6864	22	242
A			
A	1.5875	8	235

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: CL
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=345.123

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	84.871	7	255
B	9.795	22	242
B			
B	7.760	5	240
B			
B	7.025	8	235

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: SO4
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONwISE ERROR RATE,
NOT THE EXPERIMENTwISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=11232.1

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	375.00	7	255
A			
A	344.18	22	242
A			
A	270.00	8	235
B	144.94	5	240

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: F
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=0.10617

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	1.2429	7	255
B	0.5364	22	242
B			
B	0.2750	8	235
B			
B	0.2200	5	240

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DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: B
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTwISE ERROR RATE.

ALPHA=0.05 DF=26 MSE=17766

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=7.79254

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	STAT
A	525.71	7	255
C	142.73	22	242
B	140.00	5	240
B	108.75	8	235

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MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RPTYR EFFECT

```
H = TYPE I SS&CP MATRIX FOR: RPTYR
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        12
Q = HYPOTHESIS DF  =         4
NE= DF OF E        =        26
S = MIN(P,Q)       =         4
M = .5(ABS(P-Q)-1) =       3.5
N = .5(NE-P-1)     =       6.5
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =            14.10575427

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(48,54) =      3.97      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        2.58558716

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(48,72) =      2.74      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.00647001

        W = -(NE-.5(P-Q+1))*LN(L)          =          108.3724
        U = NE-.5(P-Q+1)                   =           21.5000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =            3.8521
        B = (P*Q-2)/4                      =           11.5000

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

              F(48,59) =      3.37      PROB > F = 0.0001
```

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MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL RFTYR EFFECT

ROY'S MAXIMUM ROOT CRITERION = 8.72386500

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(4,26) = 56.71 (UPPER BOUND)

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MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL STAT EFFECT

```
H = TYPE I SS&CP MATRIX FOR: STAT
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES =        12
Q = HYPOTHESIS DF  =         3
NE= DF OF E        =        26
S = MIN(P,Q)       =         3
M = .5(ABS(P-Q)-1) =       4.0
N = .5(NE-P-1)     =       6.5
```

```
HOTELLING-LAWLEY TRACE = TR(E**-1*H) =            19.17661052

        F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1))
                          WITH S(2M+S+1) AND 2(S*N+1) DF

              F(36,41) =      7.28      PROB > F = 0.0001
```

```
PILLAI'S TRACE          V = TR(H*INV(H+E)) =        2.28490015

        F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V)
                          WITH S(2M+S+1) AND S(2N+S+1) DF

              F(36,51) =      4.53      PROB > F = 0.0001
```

```
WILKS' CRITERION        L = DET(E)/DET(H+E) =       0.00578591

        W = -(NE-.5(P-Q+1))*LN(L)          =          108.1989
        U = NE-.5(P-Q+1)                   =           21.0000
        Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)   =            2.9546
        B = (P*Q-2)/4                      =            8.5000

        F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z
                          WITH P*Q AND U*Z-2B DF

              F(36,45) =      5.91      PROB > F = 0.0001
```

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MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL STAT EFFECT

ROY'S MAXIMUM ROOT CRITERION = 13.45224142

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(3,26) = 116.59 (UPPER BOUND)

APPENDIX 6-O

Special Studies/Ecological Interrelationships

APPENDIX 6-1

Experimental Revegetation Data and Analyses

APPENDIX 6-1.1

Plot R-1 Experimental Revegetation Data

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	4	0	10	20	8.5
HEDYSARUM UTAHENSIS	10	0	0	0	2.5
LINUM LEWISII	6	3	5	15	7.3
MELILOTUS OFFICINALIS	10	35	20	10	18.8
SPHAERALCEA COCCINEA	2	0	0	0	0.5
SUBTOTAL					37.5
FORB - INVADED					
ASTRAGALUS DIVERSIFOLIUS	0	1	0	0	0.3
CHAENACTIS DOUGLASII	0	0	0	1	0.3
CRYPTANTHA SERICEA	0	0	0	5	1.3
IPOMOPSIS AGGREGATA	0	8	0	0	2.0
MACHAERANTHERA PATTERSONII	0	0	1	0	0.3
SUBTOTAL					4.0
GRASS - PLANTED					
AGROPYRON SPECIES	30	35	50	15	32.5
AGROPYRON TRICHOPHORUM	15	5	10	15	11.3
STIPA VIRIDULA	8	0	5	8	5.3
SUBTOTAL					49.0
GRASS - INVADED					
BROMUS TECTORUM	0	5	1	2	2.0
SITANION HYSTRIX	3	3	0	5	2.8
SUBTOTAL					4.8
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	0	4	0	0	1.0
SUBTOTAL					1.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	7	1	1	0	2.3
SUBTOTAL					2.3
TOTAL PLANTED SPECIES					87.5
TOTAL INVADED SPECIES					11.0
GRAND TOTAL					98.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
LINUM LEWISII	8	10	20	30	17.0
MELILOTUS OFFICINALIS	6	1	2	5	3.5
PENSTEMON STRICTUS	1	0	0	0	0.3
SUBTOTAL					20.8
FORB - INVADED					
ASTRAGALUS PURSHII	0	0	0	1	0.3
CHAENACTIS DOUGLASII	0	0	0	1	0.3
CRYPTANTHA SERICEA	0	1	0	0	0.3
IPOMOPSIS AGGREGATA	5	0	0	0	1.3
MACHAERANTHERA PATTERSONII	0	2	2	0	1.0
PHLOX HOODII	0	0	1	0	0.3
SUBTOTAL					3.3
GRASS - PLANTED					
AGROPYRON SPECIES	45	35	25	12	29.3
AGROPYRON TRICHOPHORUM	0	0	0	5	1.3
ELYMUS CINEREUS	2	0	0	0	0.5
ORYZOPSIS HYMENOIDES	0	0	0	3	0.8
STIPA VIRIDULA	0	0	0	5	1.3
SUBTOTAL					33.0
GRASS - INVADED					
BROMUS TECTORUM	0	0	0	5	1.3
SITANION HYSTRIX	0	0	0	5	1.3
SUBTOTAL					2.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	4	0	1	1.3
ATRIPLEX CANESCENS	3	4	0	0	1.8
CERATOIDES LANATA	0	1	4	7	3.0
CHRYSOTHAMNUS NAUSEOSUS	0	2	0	1	0.8
SUBTOTAL					6.8
TOTAL PLANTED SPECIES					60.5
TOTAL INVADED SPECIES					5.8
GRAND TOTAL					66.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
MELILOTUS OFFICINALIS	8	20	0	1	7.3
SPHAERALCEA COCCINEA	2	0	1	0	0.8
SUBTOTAL					8.0
FORB - INVADED					
ASTER SPECIES	0	0	1	1	0.5
CHAENACTIS DOUGLASII	0	0	0	1	0.3
CRUCIFERAE SPECIES	0	0	0	1	0.3
CRYPTANTHA SERICEA	2	0	0	1	0.8
MACHAERANTHERA PATTERSONII	3	4	5	2	3.5
SENECIO MULTILOBATUS	1	0	0	0	0.3
SUBTOTAL					5.5
GRASS - PLANTED					
AGROPYRON SPECIES	70	25	45	35	43.8
AGROPYRON TRICHOPHORUM	10	0	0	0	2.5
ORYZOPSIS HYMENOIDES	0	0	8	0	2.0
STIPA VIRIDULA	3	3	0	0	1.5
SUBTOTAL					49.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	20	25	0	11.3
BROMUS TECTORUM	3	3	15	2	5.8
KOELERIA MACRANTHA	0	0	1	0	0.3
SITANION HYSTRIX	0	0	2	0	0.5
SUBTOTAL					17.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	0	0	3	1.0
CHRYSOTHAMNUS NAUSEOSUS	3	15	0	2	4.3
SUBTOTAL					5.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	1	0	0	0	0.3
SUBTOTAL					0.3
TOTAL PLANTED SPECIES					63.0
TOTAL INVADED SPECIES					23.5
GRAND TOTAL					86.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	7	0	0	2	2.3
LINUM LEWISII	0	5	0	1	1.5
MELILOTUS OFFICINALIS	15	20	15	20	17.5
PENSTEMON STRICTUS	1	0	0	0	0.3
SUBTOTAL					21.5
GRASS - PLANTED					
AGROPYRON SPECIES	35	20	30	25	27.5
ORYZOPSIS HYMENOIDES	0	0	3	0	0.8
STIPA VIRIDULA	8	0	0	0	2.0
SUBTOTAL					30.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	8	3	0	2.8
BROMUS TECTORUM	5	15	1	2	5.8
KOELERIA MACRANTHA	0	5	5	5	3.8
SITANION HYSTRIX	3	20	5	5	8.3
SUBTOTAL					20.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	1	1	0	0.8
CERATOIDES LANATA	0	0	1	1	0.5
CHRYSOTHAMNUS NAUSEOSUS	0	10	2	0	3.0
CHRYSOTHAMNUS VISCIDIFLORUS	0	1	0	0	0.3
SUBTOTAL					4.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	4	6	0	2.5
SUBTOTAL					2.5
TOTAL PLANTED SPECIES					56.3
TOTAL INVADED SPECIES					23.0
GRAND TOTAL					79.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	10	35	0	17.5
LINUM LEWISII	0	5	35	30	17.5
MELILOTUS OFFICINALIS	2	8	5	15	7.5
SPHAERALCEA COCCINEA	1	0	0	0	0.3
SUBTOTAL					42.8
FORB - INVADED					
CASTILLEJA SPECIES	0	1	0	0	0.3
IPOMOPSIS AGGREGATA	0	1	0	2	0.8
PHLOX HOODII	1	0	0	0	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	45	40	25	35	36.3
AGROPYRON TRICHOPHORUM	10	0	0	0	2.5
SUBTOTAL					38.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	15	3	0	4.5
BROMUS TECTORUM	1	0	0	4	1.3
SITANION HYSTRIX	10	0	0	4	3.5
SUBTOTAL					9.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	1	1	0	0.5
CERATOIDES LANATA	10	1	0	3	3.5
CHRYSOTHAMNUS NAUSEOSUS	0	20	10	0	7.5
SUBTOTAL					11.5
TOTAL PLANTED SPECIES					93.0
TOTAL INVADED SPECIES					10.5
GRAND TOTAL					104

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	0	10	15	12.5
LINUM LEWISII	10	8	4	12	8.5
MELILOTUS OFFICINALIS	4	15	2	3	6.0
SUBTOTAL					27.0
FORB - INVADED					
ERIOGONUM ALATUM	1	2	0	3	1.5
MACHAERANTHERA PATTERSONII	3	0	0	0	0.8
SENECIO MULTILOBATUS	0	2	1	0	0.8
SUBTOTAL					3.0
GRASS - PLANTED					
AGROPYRON SPECIES	45	35	55	45	45.0
AGROPYRON TRICHOPHORUM	0	0	15	5	5.0
ORYZOPSIS HYMENOIDES	0	0	0	5	1.3
SUBTOTAL					51.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	5	0	10	3.8
BROMUS TECTORUM	0	0	10	2	3.0
SUBTOTAL					6.8
SHRUB - PLANTED					
ATRIPLEX CANESCENS	0	0	0	4	1.0
CERATOIDES LANATA	0	0	1	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	10	0	3	0	3.3
CHRYSOTHAMNUS VISCIDIFLORUS	0	1	0	0	0.3
SUBTOTAL					4.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	2	0	0	2	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					83.0
TOTAL INVADED SPECIES					10.8
GRAND TOTAL					93.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	6	1	1.8
LINUM LEWISII	0	12	5	8	6.3
MELILOTUS OFFICINALIS	0	20	0	15	8.8
SUBTOTAL					16.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	1	0	0	0.3
LUPINUS ARGENTEUS	0	6	1	0	1.8
PHYSARIA FLORIBUNDA	0	0	1	0	0.3
SUBTOTAL					2.3
GRASS - PLANTED					
AGROPYRON SPECIES	65	10	35	20	32.5
AGROPYRON TRICHOPHORUM	10	10	10	0	7.5
STIPA VIRIDULA	0	3	5	15	5.8
SUBTOTAL					45.8
GRASS - INVADED					
BROMUS TECTORUM	1	1	10	5	4.3
SUBTOTAL					4.3
SHRUB - PLANTED					
CERATOIDES LANATA	8	3	0	1	3.0
CHRYSOTHAMNUS NAUSEOSUS	4	0	10	0	3.5
CHRYSOTHAMNUS VISCIDIFLORUS	1	0	0	0	0.3
PURSHIA TRIDENTATA	8	0	0	0	2.0
SUBTOTAL					8.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	3	0	0	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					71.3
TOTAL INVADED SPECIES					7.3
GRAND TOTAL					78.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	8	10	0	7	6.3
HEDYSARUM UTAHENSIS	0	3	0	0	0.8
LINUM LEWISII	1	1	2	3	1.8
MELILOTUS OFFICINALIS	2	3	1	4	2.5
SPHAERALCEA COCCINEA	0	0	0	1	0.3
SUBTOTAL					11.5
FORB - INVADED					
ASTER SPECIES	0	2	0	0	0.5
MACHAERANTHERA PATTERSONII	0	2	0	0	0.5
SUBTOTAL					1.0
GRASS - PLANTED					
AGROPYRON SPECIES	60	65	35	75	58.8
AGROPYRON TRICHOPHORUM	15	0	5	0	5.0
STIPA VIRIDULA	5	2	0	3	2.5
SUBTOTAL					66.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	4	0	1.0
SITANION HYSTRIX	0	2	5	0	1.8
SUBTOTAL					2.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	1	0.3
CERATOIDES LANATA	3	2	5	0	2.5
CHRYSOTHAMNUS NAUSEOSUS	0	10	0	0	2.5
PURSHIA TRIDENTATA	0	0	0	2	0.5
SUBTOTAL					5.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	1	0	0.3
SUBTOTAL					0.3
TOTAL PLANTED SPECIES					83.5
TOTAL INVADED SPECIES					4.0
GRAND TOTAL					87.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	0	0	5	7.5
HEDYSARUM UTAHENSIS	0	0	1	0	0.3
LINUM LEWISII	4	2	5	10	5.3
MELILOTUS OFFICINALIS	1	2	1	10	3.5
SUBTOTAL					16.5
FORB - INVADED					
ASTER SPECIES	0	0	0	1	0.3
CHAENACTIS DOUGLASII	1	1	0	1	0.8
HAPLOPAPPUS NUTTALLII	0	5	0	0	1.3
IPOMOPSIS AGGREGATA	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	0	0	1	4	1.3
PHYSARIA FLORIBUNDA	0	1	0	0	0.3
SENECIO MULTILOBATUS	0	0	1	1	0.5
SUBTOTAL					4.5
GRASS - PLANTED					
AGROPYRON SPECIES	40	15	70	35	40.0
AGROPYRON TRICHOPHORUM	0	20	0	5	6.3
ELYMUS CINEREUS	2	0	0	0	0.5
STIPA VIRIDULA	8	5	0	3	4.0
SUBTOTAL					50.8
GRASS - INVADED					
BROMUS TECTORUM	1	1	0	0	0.5
SITANION HYSTRIX	0	0	0	3	0.8
SUBTOTAL					1.3
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	0	2	0.5
CHRYSOTHAMNUS NAUSEOSUS	10	0	0	8	4.5
PURSHIA TRIDENTATA	0	0	1	0	0.3
SUBTOTAL					5.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	3	0	0	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					72.5
TOTAL INVADED SPECIES					6.5
GRAND TOTAL					79.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	40	0	0	16.3
LINUM LEWISII	35	12	5	8	15.0
MELILOTUS OFFICINALIS	5	2	1	2	2.5
SUBTOTAL					33.8
FORB - INVADED					
CRYPTANTHA SERICEA	1	0	8	0	2.3
IPOMOPSIS AGGREGATA	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	25	0	0	0	6.3
SUBTOTAL					8.8
GRASS - PLANTED					
AGROPYRON SPECIES	25	5	35	15	20.0
ORYZOPSIS HYMENOIDES	3	0	0	0	0.8
STIPA VIRIDULA	0	8	10	0	4.5
SUBTOTAL					25.3
GRASS - INVADED					
BROMUS TECTORUM	25	10	0	15	12.5
KOELERIA MACRANTHA	2	0	0	0	0.5
SITANION HYSTRIX	5	0	0	20	6.3
SUBTOTAL					19.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	1	0.3
CHRYSOTHAMNUS NAUSEOSUS	0	15	3	1	4.8
SUBTOTAL					5.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	0	8	2.0
SUBTOTAL					2.0
TOTAL PLANTED SPECIES					64.0
TOTAL INVADED SPECIES					30.0
GRAND TOTAL					94.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	5	35	0	0	10.0
LINUM LEWISII	0	0	0	3	0.8
MELILOTUS OFFICINALIS	0	8	6	1	3.8
SUBTOTAL					14.5
FORB - INVADED					
MACHAERANTHERA PATTERSONII	0	1	18	1	5.0
SUBTOTAL					5.0
GRASS - PLANTED					
AGROPYRON SPECIES	50	45	35	50	45.0
AGROPYRON TRICHOPHORUM	0	5	5	0	2.5
STIPA VIRIDULA	3	0	8	0	2.8
SUBTOTAL					50.3
GRASS - INVADED					
BROMUS TECTORUM	5	10	2	0	4.3
STIPA COMATA	25	0	0	0	6.3
SUBTOTAL					10.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	2	0	0	0	0.5
CERATOIDES LANATA	0	1	2	5	2.0
CHRYSOTHAMNUS NAUSEOSUS	10	1	2	4	4.3
SUBTOTAL					6.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	0	2	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					71.5
TOTAL INVADED SPECIES					16.0
GRAND TOTAL					87.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	2	0	0	0.5
HEDYSARUM UTAHENSIS	0	4	0	0	1.0
LINUM LEWISII	15	10	1	10	9.0
MELILOTUS OFFICINALIS	5	8	2	5	5.0
SUBTOTAL					15.5
FORB - INVADED					
MACHAERANTHERA PATTERSONII	5	3	0	2	2.5
SUBTOTAL					2.5
GRASS - PLANTED					
AGROPYRON SPECIES	15	40	40	40	33.8
AGROPYRON TRICHOPHORUM	10	0	0	0	2.5
STIPA VIRIDULA	6	0	0	0	1.5
SUBTOTAL					37.8
GRASS - INVADED					
AGROPYRON CRISTATUM	6	0	0	0	1.5
BROMUS TECTORUM	15	0	0	0	3.8
SUBTOTAL					5.3
SHRUB - PLANTED					
ATRIPLEX CANESCENS	6	0	0	0	1.5
CERATOIDES LANATA	0	0	0	3	0.8
CHRYSOTHAMNUS NAUSEOSUS	4	0	30	12	11.5
SUBTOTAL					13.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	3	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					67.0
TOTAL INVADED SPECIES					8.5
GRAND TOTAL					75.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	20	18	15	3	14.0
LINUM LEWISII	5	10	10	30	13.8
MELILOTUS OFFICINALIS	20	10	10	35	18.8
SUBTOTAL					46.5
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	0	0.3
IPOMOPSIS AGGREGATA	1	0	0	2	0.8
SENECIO MULTILOBATUS	0	0	1	1	0.5
SUBTOTAL					1.5
GRASS - PLANTED					
AGROPYRON SPECIES	25	20	25	10	20.0
AGROPYRON TRICHOPHORUM	15	5	0	0	5.0
STIPA VIRIDULA	0	5	5	2	3.0
SUBTOTAL					28.0
GRASS - INVADED					
BROMUS TECTORUM	0	3	0	0	0.8
SUBTOTAL					0.8
SHRUB - PLANTED					
CERATOIDES LANATA	2	0	4	0	1.5
CHRYSOTHAMNUS NAUSEOSUS	0	1	2	3	1.5
PURSHIA TRIDENTATA	2	2	1	0	1.3
SUBTOTAL					4.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	1	1	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					78.8
TOTAL INVADED SPECIES					2.8
GRAND TOTAL					81.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
HEDYSARUM UTAHENSIS	0	0	0	10	2.5
LINUM LEWISII	15	15	25	0	13.8
MELILOTUS OFFICINALIS	10	15	15	15	13.8
PENSTEMON STRICTUS	0	3	0	0	0.8
SUBTOTAL					30.8
FORB - INVADED					
ASTER SPECIES	0	0	0	1	0.3
CRYPTANTHA SERICEA	0	0	0	2	0.5
IPOMOPSIS AGGREGATA	0	0	2	0	0.5
LUPINUS ARGENTEUS	0	4	0	0	1.0
SENECIO MULTILOBATUS	3	0	0	4	1.8
SUBTOTAL					4.0
GRASS - PLANTED					
AGROPYRON SPECIES	35	15	40	30	30.0
AGROPYRON TRICHOPHORUM	0	20	0	15	8.8
ORYZOPSIS HYMENOIDES	0	1	0	0	0.3
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					40.3
GRASS - INVADED					
AGROPYRON CRISTATUM	2	0	0	0	0.5
BROMUS TECTORUM	1	2	0	0	0.8
SITANION HYSTRIX	1	0	0	3	1.0
SUBTOTAL					2.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	0	0	0	0.3
CERATOIDES LANATA	0	1	0	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	0	2	0	10	3.0
SUBTOTAL					3.5
TOTAL PLANTED SPECIES					74.5
TOTAL INVADED SPECIES					6.3
GRAND TOTAL					80.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	6	20	12	0	9.5
HEDYSARUM UTAHENSIS	0	0	15	0	3.8
LINUM LEWISII	2	10	0	30	10.5
MELILOTUS OFFICINALIS	5	1	0	3	2.3
SUBTOTAL					26.0
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	0	1	0.3
CRYPTANTHA SERICEA	0	0	0	1	0.3
HAPLOPAPPUS NUTTALLII	8	0	0	0	2.0
IPOMOPSIS AGGREGATA	0	0	3	0	0.8
MACHAERANTHERA PATTERSONII	3	0	4	0	1.8
PHLOX HOODII	1	0	0	0	0.3
SENECIO MULTILOBATUS	0	1	5	4	2.5
SUBTOTAL					7.8
GRASS - PLANTED					
AGROPYRON SPECIES	35	25	30	25	28.8
AGROPYRON TRICHOPHORUM	0	20	0	0	5.0
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					35.0
GRASS - INVADED					
BROMUS TECTORUM	0	0	3	0	0.8
SUBTOTAL					0.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	8	6	0	3.8
ATRIPLEX CANESCENS	0	0	1	1	0.5
CHRYSOTHAMNUS NAUSEOSUS	3	0	5	1	2.3
SUBTOTAL					6.5
TOTAL PLANTED SPECIES					67.5
TOTAL INVADED SPECIES					8.5
GRAND TOTAL					76.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	15	10	0	0	6.3
LINUM LEWISII	35	15	0	5	13.8
MELILOTUS OFFICINALIS	2	3	2	3	2.5
SUBTOTAL					22.5
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	0	1	0.3
COMANDRA UMBELLATA	0	0	6	0	1.5
ERIOGONUM ALATUM	0	1	0	0	0.3
HAPLOPAPPUS NUTTALLII	3	0	8	0	2.8
IPOMOPSIS AGGREGATA	1	0	3	2	1.5
LUPINUS ARGENTEUS	0	12	0	0	3.0
MACHAERANTHERA PATTERSONII	0	0	0	1	0.3
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					9.8
GRASS - PLANTED					
AGROPYRON SPECIES	15	5	35	30	21.3
STIPA VIRIDULA	0	0	12	0	3.0
SUBTOTAL					24.3
GRASS - INVADED					
BROMUS TECTORUM	10	0	10	0	5.0
KOELERIA MACRANTHA	0	2	2	0	1.0
SITANION HYSTRIX	0	20	0	0	5.0
SUBTOTAL					11.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	1	0.3
CERATOIDES LANATA	0	0	0	1	0.3
CHRYSOTHAMNUS NAUSEOSUS	5	0	5	5	3.8
PURSHIA TRIDENTATA	0	0	5	0	1.3
SUBTOTAL					5.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	1	0	2	1	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					52.3
TOTAL INVADED SPECIES					21.8
GRAND TOTAL					74.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	85	10	0	10	26.3
LINUM LEWISII	0	1	5	5	2.8
MELILOTUS OFFICINALIS	1	1	3	8	3.3
SUBTOTAL					32.3
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	0	0.3
IPOMOPSIS AGGREGATA	0	2	0	0	0.5
MACHAERANTHERA PATTERSONII	0	1	2	3	1.5
SUBTOTAL					2.3
GRASS - PLANTED					
AGROPYRON SPECIES	15	75	25	50	41.3
AGROPYRON TRICHOPHORUM	15	0	0	5	5.0
ORYZOPSIS HYMENOIDES	0	1	4	0	1.3
STIPA VIRIDULA	5	0	0	0	1.3
SUBTOTAL					48.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	12	0	3.0
CERATOIDES LANATA	0	1	0	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	2	12	10	10	8.5
CHRYSOTHAMNUS VISCIDIFLORUS	0	0	20	0	5.0
SUBTOTAL					16.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	3	1	0	0	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					97.8
TOTAL INVADED SPECIES					3.3
GRAND TOTAL					101

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	2	25	0	0	6.8
LINUM LEWISII	3	0	35	35	18.3
MELILOTUS OFFICINALIS	15	0	1	30	11.5
SPHAERALCEA COCCINEA	1	0	0	0	0.3
SUBTOTAL					36.8
FORB - INVADED					
ASTRAGALUS PURSHII	3	1	0	0	1.0
CHAENACTIS DOUGLASII	1	2	1	0	1.0
HAPLOPAPPUS NUTTALLII	0	0	7	0	1.8
IPOMOPSIS AGGREGATA	0	0	0	2	0.5
MACHAERANTHERA PATTERSONII	15	10	5	4	8.5
PHYSARIA FLORIBUNDA	0	0	0	1	0.3
SENECIO MULTILOBATUS	1	0	1	0	0.5
SUBTOTAL					13.5
GRASS - PLANTED					
AGROPYRON SPECIES	10	15	12	20	14.3
ELYMUS CINEREUS	0	0	0	1	0.3
STIPA VIRIDULA	0	0	5	5	2.5
SUBTOTAL					17.0
GRASS - INVADED					
BROMUS TECTORUM	0	0	30	3	8.3
KOELERIA MACRANTHA	6	0	1	0	1.8
SITANION HYSTRIX	2	0	0	0	0.5
SUBTOTAL					10.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	12	0	0	0	3.0
CHRYSOTHAMNUS NAUSEOSUS	1	5	8	0	3.5
CHRYSOTHAMNUS VISCIDIFLORUS	0	4	0	0	1.0
SUBTOTAL					7.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	8	0	2.0
SUBTOTAL					2.0
TOTAL PLANTED SPECIES					61.3
TOTAL INVADED SPECIES					26.0
GRAND TOTAL					87.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	3	0	0.8
LINUM LEWISII	0	30	3	12	11.3
MELILOTUS OFFICINALIS	20	15	25	30	22.5
SPHAERALCEA COCCINEA	0	0	0	5	1.3
SUBTOTAL					35.8
FORB - INVADED					
IPOMOPSIS AGGREGATA	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	5	1	1	5	3.0
SENECIO MULTILOBATUS	0	0	1	1	0.5
SUBTOTAL					3.8
GRASS - PLANTED					
AGROPYRON SPECIES	10	10	20	45	21.3
AGROPYRON TRICHOPHORUM	0	0	15	0	3.8
STIPA VIRIDULA	5	0	5	5	3.8
SUBTOTAL					28.8
GRASS - INVADED					
BROMUS TECTORUM	15	15	0	0	7.5
KOELERIA MACRANTHA	0	0	0	1	0.3
SITANION HYSTRIX	10	25	0	0	8.8
SUBTOTAL					16.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	40	0	3	18	15.3
CHRYSOTHAMNUS NAUSEOSUS	0	5	0	0	1.3
CHRYSOTHAMNUS VISCIDIFLORUS	0	25	0	0	6.3
PURSHIA TRIDENTATA	0	0	5	0	1.3
SUBTOTAL					24.0
TOTAL PLANTED SPECIES					88.5
TOTAL INVADED SPECIES					20.3
GRAND TOTAL					109

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
HEDYSARUM UTAHENSIS	0	0	0	2	0.5
LINUM LEWISII	3	3	1	15	5.5
MELILOTUS OFFICINALIS	8	4	2	8	5.5
SUBTOTAL					11.5
FORB - INVADED					
IPOMOPSIS AGGREGATA	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	2	1	0	1	1.0
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	60	50	40	25	43.8
AGROPYRON TRICHOPHORUM	10	15	0	5	7.5
ELYMUS CINEREUS	0	0	6	0	1.5
STIPA VIRIDULA	0	10	0	5	3.8
SUBTOTAL					56.5
GRASS - INVADED					
BROMUS TECTORUM	0	0	3	4	1.8
SITANION HYSTRIX	0	0	6	3	2.3
SUBTOTAL					4.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	0	0	0	0.3
CERATOIDES LANATA	5	0	15	2	5.5
CHRYSOTHAMNUS NAUSEOSUS	8	1	1	1	2.8
PURSHIA TRIDENTATA	0	0	0	10	2.5
SUBTOTAL					11.0
TOTAL PLANTED SPECIES					79.0
TOTAL INVADED SPECIES					5.3
GRAND TOTAL					84.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	0	15	3.8
HEDYSARUM UTAHENSIS	1	1	0	0	0.5
LINUM LEWISII	0	0	45	4	12.3
MELILOTUS OFFICINALIS	1	0	1	3	1.3
SUBTOTAL					17.8
FORB - INVADED					
ASTRAGALUS PURSHII	0	2	0	0	0.5
CHAENACTIS DOUGLASII	0	0	3	0	0.8
HAPLOPAPPUS NUTTALLII	0	1	0	0	0.3
MACHAERANTHERA PATTERSONII	1	2	5	0	2.0
SUBTOTAL					3.5
GRASS - PLANTED					
AGROPYRON SPECIES	60	35	5	15	28.8
AGROPYRON TRICHOPHORUM	0	8	0	0	2.0
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					32.0
GRASS - INVADED					
BROMUS TECTORUM	15	10	0	0	6.3
SITANION HYSTRIX	0	3	10	0	3.3
STIPA COMATA	0	12	0	0	3.0
SUBTOTAL					12.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	1	15	4.0
CERATOIDES LANATA	3	0	0	20	5.8
CHRYSOTHAMNUS NAUSEOSUS	12	0	0	0	3.0
CHRYSOTHAMNUS VISCIDIFLORUS	0	3	0	2	1.3
SUBTOTAL					14.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	1	0	0	3	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					63.8
TOTAL INVADED SPECIES					17.0
GRAND TOTAL					80.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	1	1	0	8	2.5
LINUM LEWISII	1	0	0	10	2.8
MELILOTUS OFFICINALIS	8	5	10	12	8.8
SUBTOTAL					14.0
FORB - INVADED					
ASTRAGALUS PURSHII	1	0	0	0	0.3
IPOMOPSIS AGGREGATA	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	4	10	12	0	6.5
PHYSARIA FLORIBUNDA	0	1	0	0	0.3
SUBTOTAL					7.3
GRASS - PLANTED					
AGROPYRON SPECIES	45	10	20	15	22.5
AGROPYRON TRICHOPHORUM	0	5	5	0	2.5
ORYZOPSIS HYMENOIDES	0	3	5	0	2.0
STIPA VIRIDULA	10	0	0	0	2.5
SUBTOTAL					29.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	10	0	4	3.5
BROMUS TECTORUM	10	5	2	8	6.3
KOELERIA MACRANTHA	3	0	5	10	4.5
POA SPECIES	0	0	8	0	2.0
SITANION HYSTRIX	0	3	0	15	4.5
SUBTOTAL					20.8
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	0	1	0.3
CHRYSOTHAMNUS NAUSEOSUS	0	25	0	0	6.3
PURSHIA TRIDENTATA	0	1	0	0	0.3
SUBTOTAL					6.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	0	5	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					50.3
TOTAL INVADED SPECIES					29.3
GRAND TOTAL					79.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	45	0	35	0	20.0
LINUM LEWISII	8	0	10	30	12.0
MELILOTUS OFFICINALIS	10	15	10	15	12.5
SUBTOTAL					44.5
FORB - INVADED					
ASTRAGALUS PURSHII	0	0	1	0	0.3
CHAENACTIS DOUGLASII	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	3	0	0	1	1.0
SUBTOTAL					1.5
GRASS - PLANTED					
AGROPYRON SPECIES	35	25	20	0	20.0
AGROPYRON TRICHOPHORUM	0	5	0	0	1.3
ORYZOPSIS HYMENOIDES	0	7	0	3	2.5
STIPA VIRIDULA	0	15	0	10	6.3
SUBTOTAL					30.0
GRASS - INVADED					
BROMUS TECTORUM	5	0	15	10	7.5
SITANION HYSTRIX	10	0	2	0	3.0
SUBTOTAL					10.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	4	0	0	1.0
ATRIPLEX CANESCENS	0	15	0	0	3.8
CHRYSOTHAMNUS NAUSEOSUS	5	20	0	25	12.5
SUBTOTAL					17.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	4	0	0	0	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					91.8
TOTAL INVADED SPECIES					13.0
GRAND TOTAL					105

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	2	18	0	5	6.3
LINUM LEWISII	0	7	12	8	6.8
MELILOTUS OFFICINALIS	5	4	15	20	11.0
SUBTOTAL					24.0
FORB - INVADED					
ARENARIA FENDLERI	0	1	0	0	0.3
ASTRAGALUS PURSHII	0	0	0	2	0.5
CRYPTANTHA SERICEA	0	0	3	0	0.8
HAPLOPAPPUS NUTTALLII	0	1	0	0	0.3
MACHAERANTHERA PATTERSONII	10	0	8	1	4.8
SUBTOTAL					6.5
GRASS - PLANTED					
AGROPYRON SPECIES	25	25	15	35	25.0
AGROPYRON TRICHOPHORUM	0	10	0	0	2.5
ORYZOPSIS HYMENOIDES	8	0	7	0	3.8
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					32.5
GRASS - INVADED					
BROMUS TECTORUM	15	0	0	0	3.8
KOELERIA MACRANTHA	0	1	0	0	0.3
SITANION HYSTRIX	10	8	2	0	5.0
SUBTOTAL					9.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	2	0	0	0	0.5
CERATOIDES LANATA	0	1	6	0	1.8
CHRYSOTHAMNUS NAUSEOSUS	0	2	0	1	0.8
SUBTOTAL					3.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	3	5	0	2.0
SUBTOTAL					2.0
TOTAL PLANTED SPECIES					59.5
TOTAL INVADED SPECIES					17.5
GRAND TOTAL					77.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	5	0	1.3
HEDYSARUM UTAHENSIS	0	0	0	2	0.5
LINUM LEWISII	5	5	15	10	8.8
MELILOTUS OFFICINALIS	2	0	0	10	3.0
SUBTOTAL					13.5
FORB - INVADED					
ASTRAGALUS DIVERSIFOLIUS	0	0	0	8	2.0
CRYPTANTHA SERICEA	0	0	1	0	0.3
HAPLOPAPPUS NUTTALLII	0	15	0	3	4.5
PHYSARIA FLORIBUNDA	0	0	1	0	0.3
SUBTOTAL					7.0
GRASS - PLANTED					
AGROPYRON SPECIES	30	50	30	25	33.8
ORYZOPSIS HYMENOIDES	0	0	0	5	1.3
STIPA VIRIDULA	15	10	5	0	7.5
SUBTOTAL					42.5
GRASS - INVADED					
BROMUS TECTORUM	0	0	1	0	0.3
SUBTOTAL					0.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	2	25	6.8
CERATOIDES LANATA	1	0	0	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	2	4	0	0	1.5
SUBTOTAL					8.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	1	0	5	0	1.5
SUBTOTAL					1.5
TOTAL PLANTED SPECIES					64.5
TOTAL INVADED SPECIES					8.8
GRAND TOTAL					73.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	3	0	0.8
LINUM LEWISII	18	3	0	5	6.5
MELILOTUS OFFICINALIS	6	3	5	8	6.0
SUBTOTAL					13.3
FORB - INVADED					
ASTRAGALUS SPATULATUS	0	0	0	1	0.3
CHAENACTIS DOUGLASII	0	1	2	1	1.0
HAPLOPAPPUS NUTTALLII	0	4	0	0	1.0
IPOMOPSIS AGGREGATA	2	0	0	0	0.5
LUPINUS ARGENTEUS	2	0	1	0	0.8
MACHAERANTHERA PATTERSONII	1	2	0	5	2.0
SUBTOTAL					5.5
GRASS - PLANTED					
AGROPYRON SPECIES	5	35	45	3	22.0
AGROPYRON TRICHOPHORUM	10	0	0	5	3.8
ORYZOPSIS HYMENOIDES	3	0	0	0	0.8
STIPA VIRIDULA	0	8	2	5	3.8
SUBTOTAL					30.3
GRASS - INVADED					
KOELERIA MACRANTHA	0	0	0	1	0.3
POA SPECIES	0	0	1	0	0.3
SITANION HYSTRIX	4	0	0	0	1.0
SUBTOTAL					1.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	30	6	3	15	13.5
CHRYSOTHAMNUS NAUSEOSUS	0	0	1	0	0.3
CHRYSOTHAMNUS VISCIDIFLORUS	0	0	3	0	0.8
SUBTOTAL					14.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	0	5	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					58.0
TOTAL INVADED SPECIES					8.3
GRAND TOTAL					66.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	23	10	0	60	23.3
HEDYSARUM UTAHENSIS	0	0	5	0	1.3
LINUM LEWISII	8	0	5	5	4.5
MELILOTUS OFFICINALIS	1	0	0	0	0.3
SPHAERALCEA COCCINEA	0	0	2	0	0.5
SUBTOTAL					29.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	1	0.5
CRYPTANTHA SERICEA	0	1	0	0	0.3
HAPLOPAPPUS NUTTALLII	0	1	0	0	0.3
IPOMOPSIS AGGREGATA	0	1	0	0	0.3
LUPINUS ARGENTEUS	0	0	0	2	0.5
MACHAERANTHERA PATTERSONII	0	1	0	0	0.3
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					2.3
GRASS - PLANTED					
AGROPYRON SPECIES	40	45	25	35	36.3
AGROPYRON TRICHOPHORUM	0	0	10	0	2.5
STIPA VIRIDULA	0	4	2	8	3.5
SUBTOTAL					42.3
SHRUB - PLANTED					
CERATOIDES LANATA	2	0	3	1	1.5
CHRYSOTHAMNUS NAUSEOSUS	2	4	6	1	3.3
PURSHIA TRIDENTATA	0	8	9	3	5.0
SUBTOTAL					9.8
TOTAL PLANTED SPECIES					81.8
TOTAL INVADED SPECIES					2.3
GRAND TOTAL					84.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	5	6	35	10	14.0
LINUM LEWISII	7	10	4	20	10.3
MELILOTUS OFFICINALIS	1	0	0	0	0.3
SUBTOTAL					24.5
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	1	0	0.5
HAPLOPAPPUS NUTTALLII	4	8	0	1	3.3
IPOMOPSIS AGGREGATA	5	1	0	0	1.5
LUPINUS ARGENTEUS	0	2	0	0	0.5
PHLOX HOODII	0	0	1	0	0.3
SENECIO MULTILOBATUS	0	1	1	0	0.5
TARAXACUM OFFICINALE	0	1	0	0	0.3
SUBTOTAL					6.8
GRASS - PLANTED					
AGROPYRON SPECIES	15	25	15	25	20.0
AGROPYRON TRICHOPHORUM	5	0	0	0	1.3
ORYZOPSIS HYMENOIDES	0	0	3	0	0.8
STIPA VIRIDULA	0	5	0	2	1.8
SUBTOTAL					23.8
GRASS - INVADED					
BROMUS TECTORUM	0	5	0	1	1.5
KOELERIA MACRANTHA	0	0	3	5	2.0
POA SPECIES	0	3	0	0	0.8
SITANION HYSTRIX	0	5	0	0	1.3
SUBTOTAL					5.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	15	1	7	0	5.8
ATRIPLEX CANESCENS	0	0	15	0	3.8
CERATOIDES LANATA	0	0	3	1	1.0
CHRYSOTHAMNUS NAUSEOSUS	5	0	0	0	1.3
PURSHIA TRIDENTATA	0	0	1	3	1.0
SUBTOTAL					12.8
TOTAL PLANTED SPECIES					61.0
TOTAL INVADED SPECIES					12.3
GRAND TOTAL					73.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	50	2	30	8	22.5
LINUM LEWISII	2	4	35	8	12.3
MELILOTUS OFFICINALIS	4	15	15	20	13.5
PENSTEMON STRICTUS	0	0	0	1	0.3
SUBTOTAL					48.5
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	0	1	0.3
IPOMOPSIS AGGREGATA	0	0	0	2	0.5
LUPINUS ARGENTEUS	0	15	0	2	4.3
MACHAERANTHERA PATTERSONII	0	0	0	5	1.3
SENECIO MULTILOBATUS	0	0	0	2	0.5
SUBTOTAL					6.8
GRASS - PLANTED					
AGROPYRON SPECIES	55	15	20	30	30.0
AGROPYRON TRICHOPHORUM	15	25	0	0	10.0
STIPA VIRIDULA	5	10	10	0	6.3
SUBTOTAL					46.3
GRASS - INVADED					
BROMUS TECTORUM	0	0	0	15	3.8
SITANION HYSTRIX	0	2	0	0	0.5
SUBTOTAL					4.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	3	0	0.8
CHRYSOTHAMNUS NAUSEOSUS	0	15	0	4	4.8
SUBTOTAL					5.5
TOTAL PLANTED SPECIES					100
TOTAL INVADED SPECIES					11.0
GRAND TOTAL					111

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	0	15	3.8
HEDYSARUM UTAHENSIS	0	0	18	9	6.8
LINUM LEWISII	1	1	15	8	6.3
MELILOTUS OFFICINALIS	1	0	0	0	0.3
SPHAERALCEA COCCINEA	0	0	1	0	0.3
SUBTOTAL					17.3
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	0	0.3
HAPLOPAPPUS NUTTALLII	0	3	0	3	1.5
LUPINUS ARGENTEUS	2	0	0	0	0.5
MACHAERANTHERA PATTERSONII	0	1	5	3	2.3
SUBTOTAL					4.5
GRASS - PLANTED					
AGROPYRON SPECIES	75	10	35	25	36.3
AGROPYRON TRICHOPHORUM	0	10	0	0	2.5
ORYZOPSIS HYMENOIDES	0	0	5	8	3.3
STIPA VIRIDULA	5	8	0	5	4.5
SUBTOTAL					46.5
GRASS - INVADED					
BROMUS TECTORUM	2	0	0	0	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	3	12	4	0	4.8
SUBTOTAL					4.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	4	0	0	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					68.5
TOTAL INVADED SPECIES					6.0
GRAND TOTAL					74.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	18	0	0	20	9.5
LINUM LEWISII	15	6	10	6	9.3
MELILOTUS OFFICINALIS	0	10	12	10	8.0
PENSTEMON STRICTUS	0	1	0	0	0.3
SUBTOTAL					27.0
FORB - INVADED					
ASTRAGALUS PURSHII	1	0	0	0	0.3
CHAENACTIS DOUGLASII	1	1	0	0	0.5
CRYPTANTHA SERICEA	0	0	0	1	0.3
HAPLOPAPPUS NUTTALLII	5	18	10	0	8.3
IPOMOPSIS AGGREGATA	1	0	1	2	1.0
LUPINUS ARGENTEUS	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	3	2	0	1	1.5
SENECIO MULTILOBATUS	0	2	0	0	0.5
SUBTOTAL					12.5
GRASS - PLANTED					
AGROPYRON SPECIES	8	0	20	18	11.5
STIPA VIRIDULA	2	0	0	0	0.5
SUBTOTAL					12.0
GRASS - INVADED					
BROMUS TECTORUM	10	2	2	5	4.8
POA SPECIES	0	0	0	1	0.3
SITANION HYSTRIX	4	5	0	3	3.0
STIPA COMATA	0	0	0	8	2.0
SUBTOTAL					10.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	15	3	4.5
CHRYSOTHAMNUS NAUSEOSUS	2	0	4	2	2.0
PURSHIA TRIDENTATA	0	0	3	0	0.8
SUBTOTAL					7.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	3	0	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					46.3
TOTAL INVADED SPECIES					23.3
GRAND TOTAL					69.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	15	0	15	30	15.0
LINUM LEWISII	5	20	20	8	13.3
MELILOTUS OFFICINALIS	12	12	15	18	14.3
SUBTOTAL					42.5
FORB - INVADED					
ASTRAGALUS PURSHII	0	0	1	0	0.3
CHAENACTIS DOUGLASII	0	0	1	0	0.3
IPOMOPSIS AGGREGATA	0	2	0	0	0.5
LUPINUS ARGENTEUS	5	2	0	0	1.8
SUBTOTAL					2.8
GRASS - PLANTED					
AGROPYRON SPECIES	15	10	25	25	18.8
AGROPYRON TRICHOPHORUM	10	10	0	20	10.0
ORYZOPSIS HYMENOIDES	18	5	0	0	5.8
STIPA VIRIDULA	0	10	0	4	3.5
SUBTOTAL					38.0
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	5	5	2.5
BROMUS TECTORUM	20	5	0	0	6.3
SITANION HYSTRIX	8	5	0	0	3.3
SUBTOTAL					12.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	1	0	0.3
ATRIPLEX CANESCENS	0	0	0	2	0.5
CERATOIDES LANATA	0	1	5	0	1.5
CHRYSOTHAMNUS NAUSEOSUS	0	0	1	0	0.3
SUBTOTAL					2.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	3	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					83.0
TOTAL INVADED SPECIES					15.5
GRAND TOTAL					98.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
LINUM LEWISII	1	15	15	12	10.8
SUBTOTAL					10.8
FORB - INVADED					
ASTRAGALUS DIVERSIFOLIUS	0	0	0	2	0.5
CHAENACTIS DOUGLASII	8	1	2	2	3.3
HAPLOPAPPUS NUTTALLII	0	0	3	0	0.8
LUPINUS ARGENTEUS	0	0	8	5	3.3
MACHAERANTHERA PATTERSONII	5	5	3	20	8.3
PHLOX HOODII	0	1	0	0	0.3
SUBTOTAL					16.3
GRASS - PLANTED					
AGROPYRON SPECIES	25	20	15	2	15.5
AGROPYRON TRICHOPHORUM	0	5	0	0	1.3
ORYZOPSIS HYMENOIDES	5	0	8	4	4.3
STIPA VIRIDULA	5	0	5	4	3.5
SUBTOTAL					24.5
GRASS - INVADED					
AGROPYRON CRISTATUM	2	0	0	0	0.5
POA SPECIES	0	0	1	0	0.3
SUBTOTAL					0.8
SHRUB - PLANTED					
CERATOIDES LANATA	1	0	0	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	0	0	5	10	3.8
SUBTOTAL					4.0
TOTAL PLANTED SPECIES					39.3
TOTAL INVADED SPECIES					17.0
GRAND TOTAL					56.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	4	10	2	0	4.0
LINUM LEWISII	5	0	0	1	1.5
MELILOTUS OFFICINALIS	1	0	10	0	2.8
SUBTOTAL					8.3
FORB - INVADED					
ASTRAGALUS PURSHII	0	1	0	0	0.3
CHAENACTIS DOUGLASII	1	1	1	0	0.8
IPOMOPSIS AGGREGATA	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	0	10	1	0	2.8
SUBTOTAL					4.0
GRASS - PLANTED					
AGROPYRON SPECIES	15	15	45	75	37.5
AGROPYRON TRICHOPHORUM	10	15	25	0	12.5
ORYZOPSIS HYMENOIDES	0	0	5	0	1.3
STIPA VIRIDULA	8	4	0	10	5.5
SUBTOTAL					56.8
GRASS - INVADED					
BROMUS TECTORUM	0	0	3	10	3.3
SITANION HYSTRIX	0	8	0	0	2.0
SUBTOTAL					5.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	10	2.5
ATRIPLEX CANESCENS	0	0	0	1	0.3
CERATOIDES LANATA	1	0	0	0	0.3
PURSHIA TRIDENTATA	0	0	1	0	0.3
SUBTOTAL					3.3
TOTAL PLANTED SPECIES					68.3
TOTAL INVADED SPECIES					9.3
GRAND TOTAL					77.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	25	30	13.8
LINUM LEWISII	15	12	20	10	14.3
MELILOTUS OFFICINALIS	5	0	0	0	1.3
SUBTOTAL					29.3
FORB - INVADED					
LUPINUS ARGENTEUS	0	7	0	0	1.8
SUBTOTAL					1.8
GRASS - PLANTED					
AGROPYRON SPECIES	30	8	35	30	25.8
AGROPYRON TRICHOPHORUM	5	5	0	5	3.8
ORYZOPSIS HYMENOIDES	0	4	5	0	2.3
STIPA VIRIDULA	10	3	15	3	7.8
SUBTOTAL					39.5
GRASS - INVADED					
BROMUS TECTORUM	0	2	5	0	1.8
KOELERIA MACRANTHA	0	5	0	8	3.3
SITANION HYSTRIX	0	10	3	3	4.0
SUBTOTAL					9.0
SHRUB - PLANTED					
PURSHIA TRIDENTATA	0	7	0	0	1.8
SUBTOTAL					1.8
TOTAL PLANTED SPECIES					70.5
TOTAL INVADED SPECIES					10.8
GRAND TOTAL					81.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	3	0	0	0.8
HEDYSARUM UTAHENSIS	3	0	0	0	0.8
LINUM LEWISII	0	9	0	0	2.3
MELILOTUS OFFICINALIS	2	0	1	0	0.8
SUBTOTAL					4.5
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	2	0.8
CRYPTANTHA SERICEA	0	0	1	0	0.3
HAPLOPAPPUS NUTTALLII	0	1	15	0	4.0
IPOMOPSIS AGGREGATA	0	1	0	0	0.3
LUPINUS ARGENTEUS	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	0	0	0	6	1.5
SENECIO MULTILOBATUS	2	0	0	0	0.5
TRAGOPOGON SPECIES	0	1	0	0	0.3
SUBTOTAL					7.8
GRASS - PLANTED					
AGROPYRON SPECIES	40	40	15	35	32.5
AGROPYRON TRICHOPHORUM	10	0	0	5	3.8
ORYZOPSIS HYMENOIDES	0	0	0	4	1.0
STIPA VIRIDULA	0	8	0	5	3.3
SUBTOTAL					40.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	3	0	0	0.8
BROMUS TECTORUM	0	10	25	0	8.8
KOELERIA MACRANTHA	5	0	0	0	1.3
PHLEUM PRATENSE	0	0	1	0	0.3
SITANION HYSTRIX	0	0	3	3	1.5
SUBTOTAL					12.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	0	7	10	4.5
CHRYSOTHAMNUS NAUSEOSUS	0	0	2	3	1.3
CHRYSOTHAMNUS VISCIDIFLORUS	0	0	5	0	1.3
SUBTOTAL					7.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	3	2	0	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					52.0
TOTAL INVADED SPECIES					21.5
GRAND TOTAL					73.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	35	6	1	0	10.5
LINUM LEWISII	8	0	8	8	6.0
MELILOTUS OFFICINALIS	10	5	3	1	4.8
SUBTOTAL					21.3
FORB - INVADED					
IPOMOPSIS AGGREGATA	2	0	0	0	0.5
LUPINUS ARGENTEUS	0	0	1	0	0.3
SUBTOTAL					0.8
GRASS - PLANTED					
AGROPYRON SPECIES	45	50	60	15	42.5
AGROPYRON TRICHOPHORUM	0	0	15	40	13.8
STIPA VIRIDULA	0	0	0	5	1.3
SUBTOTAL					57.5
GRASS - INVADED					
BROMUS TECTORUM	5	3	0	10	4.5
SITANION HYSTRIX	0	0	0	5	1.3
STIPA COMATA	0	0	0	8	2.0
SUBTOTAL					7.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	3	1	0	1.0
CERATOIDES LANATA	0	0	1	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	0	9	0	0	2.3
SUBTOTAL					3.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	7	6	0	3.3
SUBTOTAL					3.3
TOTAL PLANTED SPECIES					82.3
TOTAL INVADED SPECIES					11.8
GRAND TOTAL					94.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	55	0	0	13.8
HEDYSARUM UTAHENSIS	4	0	10	0	3.5
LINUM LEWISII	10	5	3	20	9.5
MELILOTUS OFFICINALIS	2	5	1	7	3.8
SUBTOTAL					30.5
FORB - INVADED					
IPOMOPSIS AGGREGATA	3	1	0	0	1.0
SENECIO MULTILOBATUS	1	0	0	0	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	45	45	65	30	46.3
AGROPYRON TRICHOPHORUM	0	15	10	0	6.3
STIPA VIRIDULA	3	0	10	10	5.8
SUBTOTAL					58.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	5	1.3
BROMUS TECTORUM	0	2	0	0	0.5
SITANION HYSTRIX	0	5	0	3	2.0
SUBTOTAL					3.8
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	2	0	0.5
PURSHIA TRIDENTATA	0	6	8	18	8.0
SUBTOTAL					8.5
TOTAL PLANTED SPECIES					97.3
TOTAL INVADED SPECIES					5.0
GRAND TOTAL					102

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	12	35	12	7	16.5
LINUM LEWISII	0	3	5	6	3.5
MELILOTUS OFFICINALIS	0	1	0	1	0.5
SUBTOTAL					20.5
FORB - INVADED					
LUPINUS ARGENTEUS	4	0	0	2	1.5
MACHAERANTHERA PATTERSONII	0	0	1	0	0.3
SUBTOTAL					1.8
GRASS - PLANTED					
AGROPYRON SPECIES	55	55	70	20	50.0
AGROPYRON TRICHOPHORUM	10	0	0	0	2.5
STIPA VIRIDULA	0	0	5	10	3.8
SUBTOTAL					56.3
GRASS - INVADED					
AGROPYRON CRISTATUM	5	3	0	0	2.0
SUBTOTAL					2.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	8	2.0
CERATOIDES LANATA	0	1	0	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	1	1	0	0	0.5
PURSHIA TRIDENTATA	0	2	1	0	0.8
SUBTOTAL					3.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	3	0	0	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					80.3
TOTAL INVADED SPECIES					4.5
GRAND TOTAL					84.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	1	1	20	5.5
LINUM LEWISII	75	10	1	8	23.5
MELILOTUS OFFICINALIS	0	0	5	1	1.5
SUBTOTAL					30.5
FORB - INVADED					
IPOMOPSIS AGGREGATA	1	0	0	0	0.3
LUPINUS ARGENTEUS	0	3	0	0	0.8
MACHAERANTHERA PATTERSONII	0	5	1	4	2.5
TRAGOPOGON SPECIES	0	0	1	1	0.5
UNKNOWN COMPOSITE	0	0	2	0	0.5
SUBTOTAL					4.5
GRASS - PLANTED					
AGROPYRON SPECIES	5	0	55	55	28.8
STIPA VIRIDULA	5	10	12	3	7.5
SUBTOTAL					36.3
GRASS - INVADED					
ACROPYRON CRISTATUM	0	0	5	0	1.3
BROMUS TECTORUM	20	15	0	5	10.0
KOELERIA MACRANTHA	0	5	0	0	1.3
SITANION HYSTRIX	0	5	0	0	1.3
SUBTOTAL					13.8
SHRUB - PLANTED					
CERATOIDES LANATA	1	0	1	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	0	1	0	0	0.3
SUBTOTAL					0.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	1	1	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					67.5
TOTAL INVADED SPECIES					18.8
GRAND TOTAL					86.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
LINUM LEWISII	3	0	0	0	0.8
SUBTOTAL					0.8
FORB - INVADED					
MACHAERANTHERA PATTERSONII	0	0	0	10	2.5
SUBTOTAL					2.5
GRASS - PLANTED					
AGROPYRON SPECIES	75	60	55	35	56.3
AGROPYRON TRICHOPHORUM	10	10	0	0	5.0
ORYZOPSIS HYMENOIDES	0	8	5	0	3.3
STIPA VIRIDULA	8	3	5	8	6.0
SUBTOTAL					70.5
GRASS - INVADED					
AGROPYRON CRISTATUM	10	10	0	0	5.0
BROMUS TECTORUM	5	0	0	10	3.8
KOELERIA MACRANTHA	0	0	2	3	1.3
STIPA COMATA	0	0	5	15	5.0
SUBTOTAL					15.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	3	1	8	3.0
CERATOIDES LANATA	4	0	2	3	2.3
CHRYSOTHAMNUS NAUSEOSUS	0	3	0	10	3.3
CHRYSOTHAMNUS VISCIDIFLORUS	0	10	0	0	2.5
SUBTOTAL					11.0
TOTAL PLANTED SPECIES					82.3
TOTAL INVADED SPECIES					17.5
GRAND TOTAL					99.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	40	35	0	18.8
LINUM LEWISII	15	1	0	7	5.8
MELILOTUS OFFICINALIS	5	0	1	1	1.8
SUBTOTAL					26.3
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	0	0.3
CRUCIFERAE SPECIES	0	0	1	1	0.5
CRYPTANTHA SERICEA	0	0	0	1	0.3
HAPLOPAPPUS NUTTALLII	3	0	0	0	0.8
IPOMOPSIS AGGREGATA	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	0	0	0	3	0.8
SENECIO MULTILOBATUS	1	0	0	0	0.3
SUBTOTAL					3.0
GRASS - PLANTED					
AGROPYRON SPECIES	12	55	35	20	30.5
AGROPYRON TRICHOPHORUM	0	0	15	20	8.8
STIPA VIRIDULA	5	0	0	20	6.3
SUBTOTAL					45.5
GRASS - INVADED					
BROMUS TECTORUM	10	2	0	0	3.0
SITANION HYSTRIX	3	0	0	0	0.8
SUBTOTAL					3.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	1	0	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	6	0	3	0	2.3
PURSHIA TRIDENTATA	15	0	0	0	3.8
SUBTOTAL					6.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	1	2	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					78.3
TOTAL INVADED SPECIES					7.5
GRAND TOTAL					85.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	0	18	4.5
HEDYSARUM UTAHENSIS	0	0	0	2	0.5
LINUM LEWISII	10	15	35	0	15.0
PENSTEMON STRICTUS	0	0	0	3	0.8
SUBTOTAL					20.8
FORB - INVADED					
IPOMOPSIS AGGREGATA	0	0	0	3	0.8
LUPINUS ARGENTEUS	0	2	0	0	0.5
MACHAERANTHERA PATTERSONII	5	0	3	3	2.8
TARAXACUM OFFICINALE	0	1	0	0	0.3
SUBTOTAL					4.3
GRASS - PLANTED					
AGROPYRON SPECIES	60	15	15	40	32.5
AGROPYRON TRICHOPHORUM	15	15	0	0	7.5
ORYZOPSIS HYMENOIDES	0	0	3	0	0.8
STIPA VIRIDULA	5	0	3	10	4.5
SUBTOTAL					45.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	10	3	0	3.3
BROMUS TECTORUM	3	5	0	5	3.3
KOELERIA MACRANTHA	1	0	1	0	0.5
SITANION HYSTRIX	0	0	5	0	1.3
SUBTOTAL					8.3
SHRUB - PLANTED					
CERATOIDES LANATA	0	1	0	1	0.5
CHRYSOTHAMNUS NAUSEOSUS	0	2	1	0	0.8
SUBTOTAL					1.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	0	2	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					67.3
TOTAL INVADED SPECIES					13.0
GRAND TOTAL					80.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	18	10	4	12	11.0
HEDYSARUM UTAHENSIS	0	10	0	2	3.0
LINUM LEWISII	3	15	12	2	8.0
MELILOTUS OFFICINALIS	8	10	10	20	12.0
SUBTOTAL					34.0
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	0	0.3
IPOMOPSIS AGGREGATA	0	0	1	0	0.3
SUBTOTAL					0.5
GRASS - PLANTED					
AGROPYRON SPECIES	75	25	55	45	50.0
AGROPYRON TRICHOPHORUM	0	15	0	10	6.3
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					57.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	5	1.3
BROMUS TECTORUM	0	0	0	2	0.5
SITANION HYSTRIX	0	0	0	3	0.8
SUBTOTAL					2.5
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	0	1	0.3
PURSHIA TRIDENTATA	0	5	3	0	2.0
SUBTOTAL					2.3
TOTAL PLANTED SPECIES					93.8
TOTAL INVADED SPECIES					3.0
GRAND TOTAL					96.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	4	0	0	1.0
HEDYSARUM UTAHENSIS	0	0	0	2	0.5
LINUM LEWISII	35	0	2	4	10.3
MELILOTUS OFFICINALIS	0	0	0	1	0.3
SUBTOTAL					12.0
FORB - INVADED					
CHAENACTIS DOUGLASII	0	1	0	0	0.3
HAPLOPAPPUS NUTTALLII	8	4	0	0	3.0
LUPINUS ARGENTEUS	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	0	0	1	0	0.3
PHYSARIA FLORIBUNDA	0	1	0	0	0.3
SUBTOTAL					4.0
GRASS - PLANTED					
AGROPYRON SPECIES	30	35	55	35	38.8
AGROPYRON TRICHOPHORUM	0	0	15	15	7.5
STIPA VIRIDULA	3	0	0	5	2.0
SUBTOTAL					48.3
GRASS - INVADED					
BROMUS TECTORUM	5	0	0	0	1.3
SITANION HYSTRIX	0	3	0	0	0.8
STIPA COMATA	0	0	0	8	2.0
SUBTOTAL					4.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	5	1.3
CHRYSOTHAMNUS NAUSEOSUS	1	1	5	0	1.8
CHRYSOTHAMNUS VISCIDIFLORUS	0	0	0	1	0.3
SUBTOTAL					3.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	4	0	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					63.5
TOTAL INVADED SPECIES					9.0
GRAND TOTAL					72.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	20	0	10	0	7.5
LINUM LEWISII	1	6	5	0	3.0
MELILOTUS OFFICINALIS	15	1	0	0	4.0
SUBTOTAL					14.5
FORB - INVADED					
IPOMOPSIS AGGREGATA	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	0	0	0	10	2.5
PHLOX HOODII	0	0	0	2	0.5
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					3.5
GRASS - PLANTED					
AGROPYRON SPECIES	25	55	55	35	42.5
AGROPYRON TRICHOPHORUM	5	0	10	10	6.3
ORYZOPSIS HYMENOIDES	0	0	0	5	1.3
STIPA VIRIDULA	8	5	5	3	5.3
SUBTOTAL					55.3
GRASS - INVADED					
BROMUS TECTORUM	3	0	1	15	4.8
SITANION HYSTRIX	0	0	0	8	2.0
SUBTOTAL					6.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	15	8	0	0	5.8
CERATOIDES LANATA	6	0	1	0	1.8
CHRYSOTHAMNUS NAUSEOSUS	15	0	1	0	4.0
CHRYSOTHAMNUS VISCIDIFLORUS	0	1	0	0	0.3
SUBTOTAL					11.8
TOTAL PLANTED SPECIES					81.5
TOTAL INVADED SPECIES					10.3
GRAND TOTAL					91.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
HEDYSARUM UTAHENSIS	3	0	0	0	0.8
LINUM LEWISII	0	0	10	10	5.0
SUBTOTAL					5.8
FORB - INVADED					
IPOMOPSIS AGGREGATA	2	0	0	2	1.0
SUBTOTAL					1.0
GRASS - PLANTED					
AGROPYRON SPECIES	60	55	45	70	57.5
AGROPYRON TRICHOPHORUM	0	15	5	10	7.5
STIPA VIRIDULA	2	0	0	1	0.8
SUBTOTAL					65.8
GRASS - INVADED					
AGROPYRON CRISTATUM	2	0	15	0	4.3
BROMUS TECTORUM	3	0	1	1	1.3
SUBTOTAL					5.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	1	20	15	0	9.0
CERATOIDES LANATA	0	0	3	0	0.8
CHRYSOTHAMNUS NAUSEOSUS	0	2	10	0	3.0
SUBTOTAL					12.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	5	0	0	10	3.8
SUBTOTAL					3.8
TOTAL PLANTED SPECIES					84.3
TOTAL INVADED SPECIES					10.3
GRAND TOTAL					94.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-1
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	45	45	60	37.5
HEDYSARUM UTAHENSIS	18	2	0	0	5.0
LINUM LEWISII	1	0	5	10	4.0
SUBTOTAL					46.5
FORB - INVADED					
ASTER SPECIES	2	0	0	0	0.5
CHAENACTIS DOUGLASII	0	0	1	0	0.3
HAPLOPAPPUS NUTTALLII	10	4	0	3	4.3
MACHAERANTHERA PATTERSONII	0	1	0	0	0.3
SENECIO MULTILOBATUS	2	0	0	0	0.5
SUBTOTAL					5.8
GRASS - PLANTED					
AGROPYRON SPECIES	35	50	40	35	40.0
STIPA VIRIDULA	0	6	0	3	2.3
SUBTOTAL					42.3
GRASS - INVADED					
BROMUS TECTORUM	0	1	1	0	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	2	0	6	2	2.5
PURSHIA TRIDENTATA	0	2	0	0	0.5
SUBTOTAL					3.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	4	0	0	1.0
SUBTOTAL					1.0
TOTAL PLANTED SPECIES					91.8
TOTAL INVADED SPECIES					7.3
GRAND TOTAL					99.0

APPENDIX 6-1.2

Analyses for Plot R-1 Experimental Revegetation Data

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-3. Mulch designations are presented on Figure 6-1.

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
REPORT YEAR=1983 GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=74 MSE=6.5E-04
HARMONIC MEAN OF CELL SIZES=29.9516

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	MULCH
	A	0.036152	29	1
	A			
B	A	0.033985	29	2
B	A			
B	A	0.022978	32	4
B				
B		0.020507	30	3

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-4. Block, fertilizer and mulch designations are presented on Figure 6-1.

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1050 MSE=.0019618
HARMONIC MEAN OF CELL SIZES=365.86

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	BLOCK
A	0.035964	372	2
B	0.029167	370	1
B			
B	0.026256	356	3

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BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1050 MSE=.0019618
HARMONIC MEAN OF CELL SIZES=274.047

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	FERTILIZ
	A	0.036960	269	2
	A			
B	A	0.029697	259	4
B				
B		0.028921	285	1
B				
B		0.026812	285	3

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BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1050 MSE=.0019618
HARMONIC MEAN OF CELL SIZES=273.872

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	MULCH
	A	0.037270	293	2
	A			
B	A	0.031196	263	1
B				
B		0.026721	281	3
B				
B		0.026377	261	4

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THREE-WAY ANALYSIS OF VARIANCE
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BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1281 MSE=.0058852
HARMONIC MEAN OF CELL SIZES=332.162

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	MULCH
	A	0.057558	332	4
	A			
B	A	0.050552	324	1
B				
B		0.043063	334	2
B				
B		0.040675	339	3

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=429 MSE=7.4E-04
HARMONIC MEAN OF CELL SIZES=113.07

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	FERTILIZ
	A	0.025656	147	4
	A			
B	A	0.024243	112	2
B				
B	C	0.017873	137	3
	C			
	C	0.015571	81	1

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=SHRUB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1051 MSE=1.9E-04
HARMONIC MEAN OF CELL SIZES=274.217

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	MULCH
A	0.013883	294	2
A			
A	0.013688	272	1
B	0.009307	273	3
B			
B	0.009136	260	4

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=SHRUB PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=61 MSE=5.0E-05
HARMONIC MEAN OF CELL SIZES=26.6862

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	FERTILIZ
	A	0.012602	25	2
	A			
B	A	0.011924	26	4
B				
B	C	0.008304	28	1
	C			
	C	0.006518	28	3

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-5.

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R1

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1322 MSE=.0046583
HARMONIC MEAN OF CELL SIZES=185.691

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.12853	160	1983
B	0.06122	168	1982
B			
B	0.05476	182	1981
B			
B	0.05070	175	1980
C	0.02915	180	1978
C			
C	0.02851	206	1977
D	0.01106	258	1976

RIO BLANCO OIL SHALE COMPANY
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ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=470 MSE=7.2E-04
HARMONIC MEAN OF CELL SIZES=41.3107

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.033844	36	1976
	A			
B	A	0.028204	120	1983
B	A			
B	A	0.025361	65	1980
B				
B		0.020509	96	1982
B				
B		0.017335	98	1981
	C	0.004592	49	1978
	C			
	C	0.004038	13	1977

RIO BLANCO OIL SHALE COMPANY
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ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1091 MSE=.0015092
HARMONIC MEAN OF CELL SIZES=153.771

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.069425	165	1983
B	0.057539	135	1982
C	0.034161	138	1980
C			
C	0.031007	164	1981
D	0.011442	170	1977
D			
D	0.008757	197	1976
D			
D	0.006396	129	1978

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R1

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1410 MSE=.0044341
HARMONIC MEAN OF CELL SIZES=185.382

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.093306	110	1978
B	0.065087	177	1977
C	0.029417	168	1976
D	0.013220	219	1980
D			
D	0.010896	196	1983
D			
D	0.007088	303	1981
D			
D	0.006599	244	1982

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R1

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=SHRUB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1092 MSE=1.7E-04
HARMONIC MEAN OF CELL SIZES=154.675

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.023905	146	1983
	B	0.012884	164	1982
	B			
C	B	0.011095	128	1980
C	B			
C	B	0.009834	180	1978
C				
C		0.009594	166	1977
C				
C		0.009526	137	1981
	D	0.005787	178	1976

APPENDIX 6-1.3

Plot R-2 Experimental Revegetation Data

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	12	25	0	1	9.5
LINUM LEWISII	20	8	6	15	12.3
SUBTOTAL					21.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	2	0	3	4	2.3
PHYSARIA FLORIBUNDA	0	0	0	1	0.3
SUBTOTAL					2.8
GRASS - PLANTED					
AGROPYRON SPECIES	10	10	0	8	7.0
AGROPYRON TRICHOPHORUM	0	0	5	0	1.3
ORYZOPSIS HYMENOIDES	4	2	20	2	7.0
STIPA VIRIDULA	0	0	1	4	1.3
SUBTOTAL					16.5
GRASS - INVADED					
SITANION HYSTRIX	0	0	0	2	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CERATOIDES LANATA	2	0	0	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	2	4	1	1	2.0
PURSHIA TRIDENTATA	8	0	0	0	2.0
SUBTOTAL					4.5
TOTAL PLANTED SPECIES					42.8
TOTAL INVADED SPECIES					3.3
GRAND TOTAL					46.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLO AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	25	0	45	17.5
LINUM LEWISII	3	4	5	0	3.0
SUBTOTAL					20.5
FORB - INVADED					
MACHAERANTHERA PATTERSONII	2	2	1	0	1.3
PHLOX HOODII	0	0	3	0	0.8
SUBTOTAL					2.0
GRASS - PLANTED					
AGROPYRON SPECIES	20	25	15	25	21.3
AGROPYRON TRICHOPHORUM	5	0	10	5	5.0
ORYZOPSIS HYMENOIDES	0	0	0	5	1.3
SUBTOTAL					27.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	3	0	0	0.8
SITANION HYSTRIX	0	3	4	0	1.8
SUBTOTAL					2.5
SHRUB - PLANTED					
CERATOIDES LANATA	0	2	0	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	35	18	25	5	20.8
PURSHIA TRIDENTATA	8	8	0	0	4.0
SUBTOTAL					25.3
SHRUB - INVADED					
GUTIERREZIA SARCTHRAE	3	0	2	4	2.3
SUBTOTAL					2.3
TOTAL PLANTED SPECIES					73.3
TOTAL INVADED SPECIES					6.8
GRAND TOTAL					80.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	12	10	8	0	7.5
LINUM LEWISII	2	4	12	4	5.5
MELILOTUS OFFICINALIS	0	0	0	1	0.3
SUBTOTAL					13.3
FORB - INVADED					
ASTRAGALUS PURSHII	0	0	0	1	0.3
CHAENACTIS DOUGLASII	1	0	0	1	0.5
IPOMOPSIS AGGREGATA	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	5	4	2	5	4.0
SUBTOTAL					5.0
GRASS - PLANTED					
AGROPYRON SPECIES	3	15	3	15	9.0
AGROPYRON TRICHOPHORUM	0	0	0	5	1.3
ELYMUS CINEREUS	5	0	0	0	1.3
ORYZOPSIS HYMENOIDES	10	3	5	0	4.5
SUBTOTAL					16.0
GRASS - INVADED					
SITANION HYSTRIX	3	0	0	2	1.3
SUBTOTAL					1.3
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	2	25	3	15	11.3
SUBTOTAL					11.3
TOTAL PLANTED SPECIES					40.5
TOTAL INVADED SPECIES					6.3
GRAND TOTAL					46.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	4	45	35	15	24.8
LINUM LEWISII	2	5	4	2	3.3
SUBTOTAL					28.0
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	0	0.3
IPOMOPSIS AGGREGATA	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	0	0	1	1	0.5
PHYSARIA FLORIBUNDA	1	0	0	0	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	15	15	15	8	13.3
AGROPYRON TRICHOPHORUM	0	8	0	0	2.0
ORYZOPSIS HYMENOIDES	8	0	5	15	7.0
SUBTOTAL					22.3
GRASS - INVADED					
STIPA COMATA	3	0	3	35	10.3
SUBTOTAL					10.3
SHRUB - PLANTED					
CERATOIDES LANATA	0	4	0	0	1.0
CHRYSOTHAMNUS NAUSEOSUS	15	0	5	9	7.3
PURSHIA TRIDENTATA	10	18	0	0	7.0
SUBTOTAL					15.3
TOTAL PLANTED SPECIES					65.5
TOTAL INVADED SPECIES					11.5
GRAND TOTAL					77.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	20	2	0	0	5.5
LINUM LEWISII	3	15	8	10	9.0
MELILOTUS OFFICINALIS	0	1	0	0	0.3
SUBTOTAL					14.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	0	1	0.3
CRYPTANTHA SERICEA	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	2	0	10	2	3.5
SUBTOTAL					4.0
GRASS - PLANTED					
AGROPYRON SPECIES	25	12	10	6	13.3
AGROPYRON TRICHOPHORUM	0	0	0	2	0.5
ORYZOPSIS HYMENOIDES	2	0	18	4	6.0
SUBTOTAL					19.8
GRASS - INVADED					
AGROPYRON CRISTATUM	3	0	0	0	0.8
SITANION HYSTRIX	2	0	3	2	1.8
SUBTOTAL					2.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	0	15	15	12	10.5
PURSHIA TRIDENTATA	1	8	0	2	2.8
SUBTOTAL					13.3
TOTAL PLANTED SPECIES					47.8
TOTAL INVADED SPECIES					6.5
GRAND TOTAL					54.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	25	0	10	8.8
LINUM LEWISII	4	0	0	4	2.0
PENSTEMON STRICTUS	3	0	0	0	0.8
SUBTOTAL					11.5
FORB - INVADED					
CHAENACTIS DOUGLASII	1	1	2	0	1.0
SENECIO MULTILOBATUS	0	0	0	1	0.3
UNKNOWN COMPOSITE	0	0	1	0	0.3
SUBTOTAL					1.5
GRASS - PLANTED					
AGROPYRON SPECIES	8	2	10	15	8.8
AGROPYRON TRICHOPHORUM	0	10	8	0	4.5
ORYZOPSIS HYMENOIDES	30	5	0	2	9.3
STIPA VIRIDULA	3	0	0	0	0.8
SUBTOTAL					23.3
GRASS - INVADED					
SITANION HYSTRIX	0	2	0	0	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
ATRIPLEX CANESCENS	0	0	0	8	2.0
CHRYSOTHAMNUS NAUSEOSUS	10	20	18	12	15.0
PURSHIA TRIDENTATA	0	0	0	10	2.5
SUBTOTAL					19.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	1	1	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					54.3
TOTAL INVADED SPECIES					2.5
GRAND TOTAL					56.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	25	0	0	6.3
HEDYSARUM UTAHENSIS	2	0	0	0	0.5
LINUM LEWISII	10	3	0	0	3.3
SUBTOTAL					10.0
FORB - INVADED					
CHAENACTIS DOUGLASII	2	0	1	2	1.3
IPOMOPSIS AGGREGATA	0	0	0	3	0.8
MACHAERANTHERA PATTERSONII	1	0	1	3	1.3
PHLOX HOODII	1	0	0	0	0.3
SENECIO MULTILOBATUS	1	0	0	1	0.5
TRIFOLIUM GYMNOCARPON	1	0	0	0	0.3
SUBTOTAL					4.3
GRASS - PLANTED					
AGROPYRON SPECIES	5	3	5	1	3.5
AGROPYRON TRICHOPHORUM	0	15	0	0	3.8
ORYZOPSIS HYMENOIDES	10	2	8	10	7.5
STIPA VIRIDULA	0	2	0	0	0.5
SUBTOTAL					15.3
GRASS - INVADED					
SITANION HYSTRIX	0	0	3	0	0.8
STIPA COMATA	0	0	0	8	2.0
SUBTOTAL					2.8
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	0	1	0.3
CHRYSOTHAMNUS NAUSEOSUS	7	12	23	25	16.8
SUBTOTAL					17.0
TOTAL PLANTED SPECIES					42.3
TOTAL INVADED SPECIES					7.0
GRAND TOTAL					49.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLO AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	4	6	2.5
LINUM LEWISII	20	5	8	0	8.3
MELILOTUS OFFICINALIS	0	0	1	0	0.3
SUBTOTAL					11.0
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	2	16	0	1	4.8
SENECIO MULTILOBATUS	1	0	2	0	0.8
SUBTOTAL					5.8
GRASS - PLANTED					
AGROPYRON SPECIES	3	0	0	15	4.5
AGROPYRON TRICHOPHORUM	1	0	1	10	3.0
ORYZOPSIS HYMENOIDES	25	10	5	0	10.0
SUBTOTAL					17.5
GRASS - INVADED					
SITANION HYSTRIX	3	5	0	0	2.0
SUBTOTAL					2.0
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	2	2	18	8	7.5
CHRYSOTHAMNUS NAUSEOSUS	0	0	0	10	2.5
SUBTOTAL					10.0
TOTAL PLANTED SPECIES					38.5
TOTAL INVADED SPECIES					7.8
GRAND TOTAL					46.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	2	0	1	0	0.8
LINUM LEWISII	2	0	10	20	8.0
SUBTOTAL					8.8
FORB - INVADED					
SENECIO MULTILOBATUS	0	0	2	0	0.5
SUBTOTAL					0.5
GRASS - PLANTED					
AGROPYRON SPECIES	40	3	0	5	12.0
ORYZOPSIS HYMENOIDES	1	12	12	2	6.8
STIPA VIRIDULA	0	1	0	0	0.3
SUBTOTAL					19.0
GRASS - INVADED					
STIPA COMATA	0	0	0	3	0.8
SUBTOTAL					0.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	7	2	1	5	3.8
CHRYSOTHAMNUS NAUSEOSUS	40	30	10	5	21.3
SUBTOTAL					25.0
TOTAL PLANTED SPECIES					52.8
TOTAL INVADED SPECIES					1.3
GRAND TOTAL					54.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
LINUM LEWISII	0	5	8	0	3.3
SUBTOTAL					3.3
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	5	1.5
MACHAERANTHERA PATTERSONII	1	0	3	2	1.5
SUBTOTAL					3.0
GRASS - PLANTED					
AGROPYRON SPECIES	20	5	0	1	6.5
AGROPYRON TRICHOPHORUM	0	5	0	0	1.3
ORYZOPSIS HYMENOIDES	2	0	15	0	4.3
STIPA VIRIDULA	1	0	0	0	0.3
SUBTOTAL					12.3
GRASS - INVADED					
SITANION HYSTRIX	2	0	0	2	1.0
STIPA COMATA	0	20	6	0	6.5
SUBTOTAL					7.5
SHRUB - PLANTED					
ATRIPLEX CANESCENS	0	0	15	0	3.8
CERATOIDES LANATA	2	0	0	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	10	12	10	35	16.8
PURSHIA TRIDENTATA	5	0	0	0	1.3
SUBTOTAL					22.3
TOTAL PLANTED SPECIES					37.8
TOTAL INVADED SPECIES					10.5
GRAND TOTAL					48.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	8	0	0	2.0
LINUM LEWISII	0	0	0	10	2.5
MELILOTUS OFFICINALIS	0	1	0	0	0.3
SUBTOTAL					4.8
FORB - INVADED					
ASTER SPECIES	3	0	0	0	0.8
CHAENACTIS DOUGLASII	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	3	0	4	0	1.8
PHYSARIA FLORIBUNDA	0	1	0	0	0.3
SUBTOTAL					3.0
GRASS - PLANTED					
AGROPYRON SPECIES	10	15	10	10	11.3
AGROPYRON TRICHOPHORUM	0	5	5	10	5.0
ELYMUS CINEREUS	8	0	0	0	2.0
ORYZOPSIS HYMENOIDES	10	2	2	0	3.5
STIPA VIRIDULA	0	3	0	0	0.8
SUBTOTAL					22.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	2	0	0	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	0	4	1.0
CHRYSOTHAMNUS NAUSEOSUS	15	80	5	25	31.3
SUBTOTAL					32.3
TOTAL PLANTED SPECIES					59.5
TOTAL INVADED SPECIES					3.5
GRAND TOTAL					63.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= NO MULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	0	65	16.3
LINUM LEWISII	5	0	4	0	2.3
SUBTOTAL					18.5
FORB - INVADED					
CRYPTANTHA SERICEA	0	0	1	0	0.3
IPOMOPSIS AGGREGATA	0	1	0	0	0.3
MACHAERANTHERA PATTERSONII	0	0	0	2	0.5
SENECIO MULTILOBATUS	0	0	3	0	0.8
SUBTOTAL					1.8
GRASS - PLANTED					
AGROPYRON SPECIES	3	5	10	20	9.5
ORYZOPSIS HYMENOIDES	3	10	0	5	4.5
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					15.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	6	1.5
SITANION HYSTRIX	0	3	4	0	1.8
SUBTOTAL					3.3
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	4	0	1.0
CHRYSOTHAMNUS NAUSEOSUS	35	40	15	4	23.5
PURSHIA TRIDENTATA	0	0	0	4	1.0
SUBTOTAL					25.5
TOTAL PLANTED SPECIES					59.3
TOTAL INVADED SPECIES					5.0
GRAND TOTAL					64.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
LINUM LEWISII	15	3	15	3	9.0
MELILOTUS OFFICINALIS	0	0	0	2	0.5
SUBTOTAL					9.5
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	0	1	0.3
CRYPTANTHA SERICEA	1	0	0	0	0.3
IPOMOPSIS AGGREGATA	0	0	0	2	0.5
MACHAERANTHERA PATTERSONII	0	1	0	0	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	3	5	6	10	6.0
ORYZOPSIS HYMENOIDES	10	0	15	0	6.3
SUBTOTAL					12.3
GRASS - INVADED					
STIPA COMATA	0	2	3	0	1.3
SUBTOTAL					1.3
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	40	5	0	18	15.8
SUBTOTAL					15.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	30	4	0	8.5
SUBTOTAL					8.5
TOTAL PLANTED SPECIES					37.5
TOTAL INVADED SPECIES					11.0
GRAND TOTAL					48.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	9	1	2	4	4.0
HEDYSARUM UTAHENSIS	2	0	0	0	0.5
LINUM LEWISII	1	4	0	0	1.3
SUBTOTAL					5.8
FORB - INVADED					
SENECIO MULTILOBATUS	0	1	0	1	0.5
SUBTOTAL					0.5
GRASS - PLANTED					
AGROPYRON SPECIES	20	15	10	15	15.0
AGROPYRON TRICHOPHORUM	5	5	0	0	2.5
ORYZOPSIS HYMENOIDES	4	8	5	4	5.3
STIPA VIRIDULA	0	0	0	4	1.0
SUBTOTAL					23.8
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	20	20	5	15	15.0
PURSHIA TRIDENTATA	5	3	3	6	4.3
SUBTOTAL					19.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	4	0	0	4	2.0
SUBTOTAL					2.0
TOTAL PLANTED SPECIES					48.8
TOTAL INVADED SPECIES					2.5
GRAND TOTAL					51.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	8	0	3	2.8
HEDYSARUM UTAHENSIS	0	0	2	0	0.5
LINUM LEWISII	2	1	3	1	1.8
SUBTOTAL					5.0
FORB - INVADED					
MACHAERANTHERA PATTERSONII	0	2	0	0	0.5
SUBTOTAL					0.5
GRASS - PLANTED					
AGROPYRON SPECIES	5	0	10	25	10.0
ELYMUS CINEREUS	0	5	0	0	1.3
ORYZOPSIS HYMENOIDES	20	8	4	0	8.0
SUBTOTAL					19.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	2	0	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	20	0	0	5.0
CHRYSOTHAMNUS NAUSEOSUS	40	6	25	45	29.0
PURSHIA TRIDENTATA	20	4	0	25	12.3
SUBTOTAL					46.3
TOTAL PLANTED SPECIES					70.5
TOTAL INVADED SPECIES					1.0
GRAND TOTAL					71.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	3	0	0	0.8
LINUM LEWISII	3	2	3	4	3.0
MELILOTUS OFFICINALIS	0	0	2	0	0.5
SUBTOTAL					4.3
FORB - INVADED					
ASTRAGALUS DIVERSIFOLIUS	2	0	0	0	0.5
CHAENACTIS DOUGLASII	1	0	2	0	0.8
CRYPTANTHA SERICEA	0	1	0	1	0.5
MACHAERANTHERA PATTERSONII	0	0	1	0	0.3
TRIFOLIUM GYMNOCARPON	1	0	0	0	0.3
SUBTOTAL					2.3
GRASS - PLANTED					
AGROPYRON SPECIES	7	8	5	15	8.8
AGROPYRON TRICHOPHORUM	0	3	0	0	0.8
ORYZOPSIS HYMENOIDES	4	3	14	0	5.3
SUBTOTAL					14.8
GRASS - INVADED					
STIPA COMATA	0	0	15	3	4.5
SUBTOTAL					4.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	0	70	15	40	31.3
PURSHIA TRIDENTATA	0	0	0	2	0.5
SUBTOTAL					31.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	2	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					50.8
TOTAL INVADED SPECIES					7.3
GRAND TOTAL					58.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	4	0	25	0	7.3
LINUM LEWISII	5	10	5	4	6.0
SUBTOTAL					13.3
FORB - INVADED					
CHAENACTIS DOUGLASII	1	1	1	1	1.0
DESCURAINIA RICHARDSONII	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	0	5	0	0	1.3
SUBTOTAL					2.5
GRASS - PLANTED					
AGROPYRON SPECIES	5	0	5	20	7.5
AGROPYRON TRICHOPHORUM	10	0	5	5	5.0
ELYMUS CINEREUS	12	0	0	0	3.0
ORYZOPSIS HYMENOIDES	0	5	0	0	1.3
SUBTOTAL					16.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	2	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CERATOIDES LANATA	0	0	0	3	0.8
CHRYSOTHAMNUS NAUSEOSUS	1	8	8	35	13.0
PURSHIA TRIDENTATA	0	0	0	4	1.0
SUBTOTAL					14.8
TOTAL PLANTED SPECIES					44.8
TOTAL INVADED SPECIES					3.0
GRAND TOTAL					47.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	15	35	20	0	17.5
LINUM LEWISII	4	0	2	2	2.0
SUBTOTAL					19.5
FORB - INVADED					
MACHAERANTHERA PATTERSONII	3	2	2	0	1.8
SUBTOTAL					1.8
GRASS - PLANTED					
AGROPYRON SPECIES	5	15	20	10	12.5
AGROPYRON TRICHOPHORUM	10	5	5	0	5.0
ORYZOPSIS HYMENOIDES	9	0	15	8	8.0
STIPA VIRIDULA	0	0	0	1	0.3
SUBTOTAL					25.8
GRASS - INVADED					
POA SPECIES	0	0	0	4	1.0
SUBTOTAL					1.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	10	0	2.5
CHRYSOTHAMNUS NAUSEOSUS	10	55	15	7	21.8
PURSHIA TRIDENTATA	20	20	4	0	11.0
SUBTOTAL					35.3
TOTAL PLANTED SPECIES					80.5
TOTAL INVADED SPECIES					2.8
GRAND TOTAL					83.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	45	0	0	0	11.3
LINUM LEWISII	10	6	4	6	6.5
MELILOTUS OFFICINALIS	0	2	0	2	1.0
SUBTOTAL					18.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	1	0	0	0.3
CRUCIFERAE SPECIES	0	0	0	2	0.5
IPOMOPSIS AGGREGATA	0	1	0	0	0.3
TRAGOPOGON SPECIES	0	1	0	0	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	6	4	10	3	5.8
ORYZOPSIS HYMENOIDES	8	10	0	10	7.0
STIPA VIRIDULA	3	0	0	0	0.8
SUBTOTAL					13.5
GRASS - INVADED					
SITANION HYSTRIX	0	2	0	0	0.5
STIPA COMATA	3	6	40	12	15.3
SUBTOTAL					15.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	3	1	1.0
CHRYSOTHAMNUS NAUSEOSUS	9	2	4	0	3.8
SUBTOTAL					4.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	3	4	3	2	3.0
SUBTOTAL					3.0
TOTAL PLANTED SPECIES					37.0
TOTAL INVADED SPECIES					20.0
GRAND TOTAL					57.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	1	0	0	18	4.8
HEDYSARUM UTAHENSIS	4	0	0	0	1.0
LINUM LEWISII	4	8	12	2	6.5
MELILOTUS OFFICINALIS	0	1	1	0	0.5
SUBTOTAL					12.8
FORB - INVADED					
MACHAERANTHERA PATTERSONII	0	4	5	8	4.3
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					4.5
GRASS - PLANTED					
AGROPYRON SPECIES	18	0	3	6	6.8
ELYMUS CINEREUS	0	0	10	0	2.5
ORYZOPSIS HYMENOIDES	0	0	5	0	1.3
STIPA VIRIDULA	0	0	0	3	0.8
SUBTOTAL					11.3
GRASS - INVADED					
STIPA COMATA	3	0	0	0	0.8
SUBTOTAL					0.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	6	0	0	0	1.5
CHRYSOTHAMNUS NAUSEOSUS	25	18	7	15	16.3
PURSHIA TRIDENTATA	3	0	9	0	3.0
SUBTOTAL					20.8
TOTAL PLANTED SPECIES					44.8
TOTAL INVADED SPECIES					5.3
GRAND TOTAL					50.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	5	2	0	2	2.3
LINUM LEWISII	0	0	0	1	0.3
PENSTEMON STRICTUS	0	3	0	0	0.8
SUBTOTAL					3.3
FORB - INVADED					
CRYPTANTHA SERICEA	0	0	1	0	0.3
IPOMOPSIS AGGREGATA	0	0	1	0	0.3
SENECIO MULTILOBATUS	0	0	3	0	0.8
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	10	5	5	15	8.8
AGROPYRON TRICHOPHORUM	0	0	0	5	1.3
ELYMUS CINEREUS	0	4	0	0	1.0
ORYZOPSIS HYMENOIDES	10	0	30	15	13.8
STIPA VIRIDULA	0	5	0	0	1.3
SUBTOTAL					26.0
GRASS - INVADED					
AGROPYRON CRISTATUM	0	3	0	0	0.8
SITANION HYSTRIX	2	0	0	0	0.5
SUBTOTAL					1.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	5	0	0	0	1.3
CHRYSOTHAMNUS NAUSEOSUS	45	30	55	12	35.5
PURSHIA TRIDENTATA	0	15	0	2	4.3
SUBTOTAL					41.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	3	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					70.3
TOTAL INVADED SPECIES					3.3
GRAND TOTAL					73.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	40	0	0	10.0
LINUM LEWISII	8	2	4	0	3.5
SUBTOTAL					13.5
FORB - INVADED					
CHAENACTIS DOUGLASII	2	0	4	0	1.5
MACHAERANTHERA PATTERSONII	2	0	0	4	1.5
SENECIO MULTILOBATUS	0	0	0	2	0.5
SUBTOTAL					3.5
GRASS - PLANTED					
AGROPYRON SPECIES	15	5	5	5	7.5
AGROPYRON TRICHOPHORUM	0	5	0	10	3.8
ORYZOPSIS HYMENOIDES	4	0	15	8	6.8
STIPA VIRIDULA	6	0	5	8	4.8
SUBTOTAL					22.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	4	2	0	1.5
STIPA COMATA	0	5	20	25	12.5
SUBTOTAL					14.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	4	1.0
CERATOIDES LANATA	2	0	0	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	0	60	8	2	17.5
PURSHIA TRIDENTATA	0	5	0	0	1.3
SUBTOTAL					20.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	5	0	0	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					56.5
TOTAL INVADED SPECIES					18.8
GRAND TOTAL					75.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	35	0	5	25	16.3
HEDYSARUM UTAHENSIS	0	0	0	22	5.5
LINUM LEWISII	1	5	2	2	2.5
SUBTOTAL					24.3
FORB - INVADED					
MACHAERANTHERA PATTERSONII	10	0	0	0	2.5
SUBTOTAL					2.5
GRASS - PLANTED					
AGROPYRON SPECIES	20	0	12	10	10.5
AGROPYRON TRICHOPHORUM	0	0	0	3	0.8
ORYZOPSIS HYMENOIDES	0	10	7	0	4.3
STIPA VIRIDULA	1	2	0	2	1.3
SUBTOTAL					16.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	5	1.3
BROMUS TECTORUM	1	0	0	0	0.3
SUBTOTAL					1.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	4	18	0	0	5.5
PURSHIA TRIDENTATA	3	0	1	0	1.0
SUBTOTAL					6.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	2	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					47.5
TOTAL INVADED SPECIES					4.5
GRAND TOTAL					52.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= HYDROMULCH
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	1	1	30	8.0
LINUM LEWISII	4	20	0	0	6.0
MELILOTUS OFFICINALIS	0	1	1	1	0.8
SUBTOTAL					14.8
FORB - INVADED					
MACHAERANTHERA PATTERSONII	2	8	2	0	3.0
SENECIO MULTILOBATUS	2	1	0	0	0.8
SUBTOTAL					3.8
GRASS - PLANTED					
AGROPYRON SPECIES	2	1	12	5	5.0
AGROPYRON TRICHOPHORUM	0	0	10	0	2.5
ELYMUS CINEREUS	0	0	6	0	1.5
ORYZOPSIS HYMENOIDES	10	15	5	15	11.3
SUBTOTAL					20.3
GRASS - INVADED					
BROMUS TECTORUM	0	1	0	0	0.3
SUBTOTAL					0.3
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	10	18	10	5	10.8
PURSHIA TRIDENTATA	0	0	0	15	3.8
SUBTOTAL					14.5
TOTAL PLANTED SPECIES					49.5
TOTAL INVADED SPECIES					4.0
GRAND TOTAL					53.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	15	18	20	13.3
HEDYSARUM UTAHENSIS	12	0	0	0	3.0
LINUM LEWISII	1	5	14	3	5.8
SUBTOTAL					22.0
FORB - INVADED					
CHAENACTIS DOUGLASII	0	1	0	0	0.3
HAPLOPAPPUS NUTTALLII	0	1	1	0	0.5
MACHAERANTHERA PATTERSONII	0	0	2	1	0.8
SUBTOTAL					1.5
GRASS - PLANTED					
AGROPYRON SPECIES	10	2	8	3	5.8
AGROPYRON TRICHOPHORUM	10	6	0	0	4.0
ORYZOPSIS HYMENOIDES	4	3	1	15	5.8
STIPA VIRIDULA	0	2	3	0	1.3
SUBTOTAL					16.8
GRASS - INVADED					
STIPA COMATA	0	2	0	1	0.8
SUBTOTAL					0.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	5	0	0	0	1.3
ATRIPLEX CANESCENS	0	0	3	0	0.8
CHRYSOTHAMNUS NAUSEOSUS	8	10	4	0	5.5
PURSHIA TRIDENTATA	0	8	0	0	2.0
SUBTOTAL					9.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	3	5	3	12	5.8
SUBTOTAL					5.8
TOTAL PLANTED SPECIES					48.3
TOTAL INVADED SPECIES					8.0
GRAND TOTAL					56.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	12	70	5	45	33.0
LINUM LEWISII	4	3	8	8	5.8
MELILOTUS OFFICINALIS	1	0	0	0	0.3
SUBTOTAL					39.0
FORB - INVADED					
MACHAERANTHERA PATTERSONII	2	0	0	0	0.5
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					0.8
GRASS - PLANTED					
AGROPYRON SPECIES	30	10	3	25	17.0
ORYZOPSIS HYMENOIDES	0	10	15	4	7.3
SUBTOTAL					24.3
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	18	10	3	0	7.8
PURSHIA TRIDENTATA	5	0	0	0	1.3
SUBTOTAL					9.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	15	0	3.8
SUBTOTAL					3.8
TOTAL PLANTED SPECIES					72.3
TOTAL INVADED SPECIES					4.5
GRAND TOTAL					76.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	7	8	0	65	20.0
HEDYSARUM UTAHENSIS	0	0	0	5	1.3
LINUM LEWISII	0	0	1	3	1.0
MELILOTUS OFFICINALIS	1	0	2	1	1.0
SUBTOTAL					23.3
FORB - INVADED					
CRYPTANTHA SERICEA	0	1	0	0	0.3
MACHAERANTHERA PATTERSONII	2	2	0	0	1.0
SENECIO MULTILOBATUS	1	0	1	0	0.5
SUBTOTAL					1.8
GRASS - PLANTED					
AGROPYRON SPECIES	10	5	15	10	10.0
AGROPYRON TRICHOPHORUM	5	0	10	10	6.3
ORYZOPSIS HYMENOIDES	15	10	5	3	8.3
SUBTOTAL					24.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	5	0	1.3
CHRYSOTHAMNUS NAUSEOSUS	35	35	15	25	27.5
RHUS TRILOBATA	2	0	0	0	0.5
SUBTOTAL					29.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	2	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					77.0
TOTAL INVADED SPECIES					2.3
GRAND TOTAL					79.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	12	3	0	3.8
LINUM LEWISII	6	0	3	10	4.8
SUBTOTAL					8.5
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	0	0.3
IPOMOPSIS AGGREGATA	0	0	0	4	1.0
SENECIO MULTILOBATUS	0	2	0	0	0.5
SUBTOTAL					1.8
GRASS - PLANTED					
AGROPYRON SPECIES	8	12	1	3	6.0
AGROPYRON TRICHOPHORUM	0	0	0	2	0.5
ORYZOPSIS HYMENOIDES	8	8	4	12	8.0
STIPA VIRIDULA	0	0	0	10	2.5
SUBTOTAL					17.0
GRASS - INVADED					
STIPA COMATA	5	5	7	0	4.3
SUBTOTAL					4.3
SHRUB - PLANTED					
ATRIPLEX CANESCENS	3	0	0	0	0.8
CHRYSOTHAMNUS NAUSEOSUS	0	0	6	0	1.5
PURSHIA TRIDENTATA	0	18	0	0	4.5
SUBTOTAL					6.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	12	10	12	10	11.0
SUBTOTAL					11.0
TOTAL PLANTED SPECIES					32.3
TOTAL INVADED SPECIES					17.0
GRAND TOTAL					49.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	10	40	20	0	17.5
HEDYSARUM UTAHENSIS	0	0	0	10	2.5
LINUM LEWISII	5	3	0	4	3.0
SUBTOTAL					23.0
FORB - INVADED					
MACHAERANTHERA PATTERSONII	0	2	0	0	0.5
SUBTOTAL					0.5
GRASS - PLANTED					
AGROPYRON SPECIES	8	35	15	20	19.5
AGROPYRON TRICHOPHORUM	0	0	0	3	0.8
ELYMUS CINEREUS	0	0	7	5	3.0
ORYZOPSIS HYMENOIDES	8	0	8	5	5.3
STIPA VIRIDULA	0	0	4	0	1.0
SUBTOTAL					29.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	2	0	0	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	15	0	25	45	21.3
PURSHIA TRIDENTATA	0	2	8	5	3.8
SUBTOTAL					25.0
TOTAL PLANTED SPECIES					77.5
TOTAL INVADED SPECIES					1.0
GRAND TOTAL					78.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	30	5	45	26.3
LINUM LEWISII	6	3	0	1	2.5
SUBTOTAL					28.8
FORB - INVADED					
MACHAERANTHERA PATTERSONII	8	2	0	0	2.5
SENECIO MULTILOBATUS	4	0	0	1	1.3
SUBTOTAL					3.8
GRASS - PLANTED					
AGROPYRON SPECIES	5	15	20	45	21.3
AGROPYRON TRICHOPHORUM	5	10	15	0	7.5
ORYZOPSIS HYMENOIDES	0	0	10	0	2.5
STIPA VIRIDULA	0	0	0	3	0.8
SUBTOTAL					32.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	15	2	4.3
CERATOIDES LANATA	0	0	2	0	0.5
CHRYSOTHAMNUS NAUSEOSUS	30	25	12	25	23.0
PURSHIA TRIDENTATA	4	8	0	7	4.8
SUBTOTAL					32.5
TOTAL PLANTED SPECIES					93.3
TOTAL INVADED SPECIES					3.8
GRAND TOTAL					97.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	7	0	0	10	4.3
LINUM LEWISII	3	4	0	3	2.5
SUBTOTAL					6.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	2	2	1.0
DESCURAINIA RICHARDSONII	0	0	1	0	0.3
MACHAERANTHERA PATTERSONII	8	1	2	0	2.8
SUBTOTAL					4.0
GRASS - PLANTED					
AGROPYRON SPECIES	6	15	15	15	12.8
AGROPYRON TRICHOPHORUM	0	5	5	8	4.5
ORYZOPSIS HYMENOIDES	8	0	0	2	2.5
SUBTOTAL					19.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	3	0.8
STIPA COMATA	3	2	0	10	3.8
SUBTOTAL					4.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	7	0	0	1.8
CHRYSOTHAMNUS NAUSEOSUS	5	0	0	5	2.5
PURSHIA TRIDENTATA	0	0	8	5	3.3
SUBTOTAL					7.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	10	4	2	2	4.5
SUBTOTAL					4.5
TOTAL PLANTED SPECIES					34.0
TOTAL INVADED SPECIES					13.0
GRAND TOTAL					47.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	10	15	18	10.8
LINUM LEWISII	0	7	7	0	3.5
SUBTOTAL					14.3
FORB - INVADED					
IPOMOPSIS AGGREGATA	0	0	0	1	0.3
MACHAERANTHERA PATTERSONII	4	0	0	0	1.0
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					1.5
GRASS - PLANTED					
AGROPYRON SPECIES	25	0	12	15	13.0
AGROPYRON TRICHOPHORUM	0	0	0	8	2.0
ORYZOPSIS HYMENOIDES	12	10	0	1	5.8
SUBTOTAL					20.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	11	0	2.8
CHRYSOTHAMNUS NAUSEOSUS	5	20	8	0	8.3
PURSHIA TRIDENTATA	7	0	0	12	4.8
SUBTOTAL					15.8
TOTAL PLANTED SPECIES					50.8
TOTAL INVADED SPECIES					1.5
GRAND TOTAL					52.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	15	0	2	4.3
HEDYSARUM UTAHENSIS	0	0	0	5	1.3
LINUM LEWISII	1	4	4	3	3.0
SUBTOTAL					8.5
FORB - INVADED					
ASTER SPECIES	0	0	1	0	0.3
IPOMOPSIS AGGREGATA	2	0	0	0	0.5
MACHAERANTHERA PATTERSONII	3	2	0	4	2.3
PHYSARIA FLORIBUNDA	1	0	0	0	0.3
SUBTOTAL					3.3
GRASS - PLANTED					
AGROPYRON SPECIES	6	5	0	10	5.3
AGROPYRON TRICHOPHORUM	0	0	0	5	1.3
ORYZOPSIS HYMENOIDES	0	12	2	20	8.5
STIPA VIRIDULA	0	3	0	0	0.8
SUBTOTAL					15.8
GRASS - INVADED					
AGROPYRON CRISTATUM	0	6	0	0	1.5
SITANION HYSTRIX	0	0	2	0	0.5
STIPA COMATA	0	0	3	0	0.8
SUBTOTAL					2.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	8	0	0	2.0
CHRYSOTHAMNUS NAUSEOSUS	0	25	25	15	16.3
PURSHIA TRIDENTATA	0	0	0	1	0.3
SUBTOTAL					18.5
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	0	2	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					42.8
TOTAL INVADED SPECIES					6.5
GRAND TOTAL					49.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	2	1	0	0	0.8
LINUM LEWISII	5	8	18	8	9.8
SUBTOTAL					10.5
FORB - INVADED					
CHAENACTIS DOUGLASII	3	0	0	0	0.8
IPOMOPSIS AGGREGATA	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	0	4	0	2	1.5
SENECIO MULTILOBATUS	0	1	0	0	0.3
SUBTOTAL					2.8
GRASS - PLANTED					
AGROPYRON SPECIES	10	0	6	5	5.3
ORYZOPSIS HYMENOIDES	7	18	3	10	9.5
STIPA VIRIDULA	2	3	0	0	1.3
SUBTOTAL					16.0
GRASS - INVADED					
BROMUS TECTORUM	0	3	1	0	1.0
SITANION HYSTRIX	1	0	0	4	1.3
STIPA COMATA	0	0	8	2	2.5
SUBTOTAL					4.8
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	5	2	0	3	2.5
PURSHIA TRIDENTATA	5	0	0	0	1.3
SUBTOTAL					3.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	4	0	0	3	1.8
SUBTOTAL					1.8
TOTAL PLANTED SPECIES					30.3
TOTAL INVADED SPECIES					9.3
GRAND TOTAL					39.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	20	3	20	45	22.0
HEDYSARUM UTAHENSIS	0	0	10	0	2.5
LINUM LEWISII	4	5	0	0	2.3
SUBTOTAL					26.8
GRASS - PLANTED					
AGROPYRON SPECIES	25	8	10	15	14.5
AGROPYRON TRICHOPHORUM	0	15	10	0	6.3
ORYZOPSIS HYMENOIDES	0	5	3	5	3.3
STIPA VIRIDULA	0	0	5	0	1.3
SUBTOTAL					25.3
GRASS - INVADED					
STIPA COMATA	0	0	0	2	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	20	30	12	20	20.5
PURSHIA TRIDENTATA	0	5	0	0	1.3
SUBTOTAL					21.8
TOTAL PLANTED SPECIES					73.8
TOTAL INVADED SPECIES					0.5
GRAND TOTAL					74.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-CRIMPING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	3	55	8	7	18.3
LINUM LEWISII	5	0	5	3	3.3
PENSTEMON STRICTUS	8	0	0	0	2.0
SUBTOTAL					23.5
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	1	1	0.8
MACHAERANTHERA PATTERSONII	3	0	4	0	1.8
SUBTOTAL					2.5
GRASS - PLANTED					
AGROPYRON SPECIES	20	10	10	15	13.8
AGROPYRON TRICHOPHORUM	15	0	5	15	8.8
ORYZOPSIS HYMENOIDES	30	0	4	5	9.8
SUBTOTAL					32.3
GRASS - INVADED					
SITANION HYSTRIX	0	0	0	2	0.5
SUBTOTAL					0.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	25	5	0	7.5
CHRYSOTHAMNUS NAUSEOSUS	3	30	3	35	17.8
SUBTOTAL					25.3
TOTAL PLANTED SPECIES					81.0
TOTAL INVADED SPECIES					3.0
GRAND TOTAL					84.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	40	3	0	0	10.8
LINUM LEWISII	1	3	0	3	1.8
SUBTOTAL					12.5
FORB - INVADED					
ASTRAGALUS DIVERSIFOLIUS	0	0	2	0	0.5
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					0.8
GRASS - PLANTED					
AGROPYRON SPECIES	2	15	10	8	8.8
AGROPYRON TRICHOPHORUM	8	0	0	10	4.5
ORYZOPSIS HYMENOIDES	0	0	0	4	1.0
STIPA VIRIDULA	0	0	0	4	1.0
SUBTOTAL					15.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	3	15	0	4.5
STIPA COMATA	4	0	0	0	1.0
SUBTOTAL					5.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	3	30	3	0	9.0
CHRYSOTHAMNUS NAUSEOSUS	55	0	40	0	23.8
PURSHIA TRIDENTATA	0	0	0	10	2.5
SUBTOTAL					35.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	4	4	0	2.0
SUBTOTAL					2.0
TOTAL PLANTED SPECIES					63.0
TOTAL INVADED SPECIES					8.3
GRAND TOTAL					71.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	30	0	0	25	13.8
LINUM LEWISII	2	8	8	8	6.5
SUBTOTAL					20.3
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	2	0	0.5
MACHAERANTHERA PATTERSONII	0	0	1	0	0.3
SUBTOTAL					0.8
GRASS - PLANTED					
AGROPYRON SPECIES	35	10	8	25	19.5
AGROPYRON TRICHOPHORUM	0	2	0	5	1.8
ORYZOPSIS HYMENOIDES	0	10	6	8	6.0
STIPA VIRIDULA	0	0	10	0	2.5
SUBTOTAL					29.8
GRASS - INVADED					
SITANION HYSTRIX	0	0	3	0	0.8
SUBTOTAL					0.8
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	3	0	0	0	0.8
CHRYSOTHAMNUS NAUSEOSUS	11	25	2	3	10.3
PURSHIA TRIDENTATA	0	0	7	0	1.8
SUBTOTAL					12.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	2	0	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					62.8
TOTAL INVADED SPECIES					2.0
GRAND TOTAL					64.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=NO FERTILIZER

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	0	25	15	16.3
LINUM LEWISII	7	1	1	1	2.5
MELILOTUS OFFICINALIS	0	1	0	0	0.3
SUBTOTAL					19.0
FORB - INVADED					
CRYPTANTHA SERICEA	0	1	0	0	0.3
MACHAERANTHERA PATTERSONII	0	1	0	0	0.3
SENECIO MULTILOBATUS	0	2	0	0	0.5
SUBTOTAL					1.0
GRASS - PLANTED					
AGROPYRON SPECIES	10	25	35	45	28.8
AGROPYRON TRICHOPHORUM	10	5	5	0	5.0
ELYMUS CINEREUS	0	10	0	0	2.5
ORYZOPSIS HYMENOIDES	5	8	0	5	4.5
STIPA VIRIDULA	0	10	0	0	2.5
SUBTOTAL					43.3
GRASS - INVADED					
AGROPYRON CRISTATUM	4	0	0	4	2.0
SUBTOTAL					2.0
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	10	1	30	10	12.8
SUBTOTAL					12.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	3	3	1.5
SUBTOTAL					1.5
TOTAL PLANTED SPECIES					75.0
TOTAL INVADED SPECIES					4.5
GRAND TOTAL					79.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	45	2	0	25	18.0
LINUM LEWISII	0	3	5	0	2.0
SUBTOTAL					20.0
FORB - INVADED					
CRUCIFERAE SPECIES	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	0	2	0	0	0.5
SUBTOTAL					0.8
GRASS - PLANTED					
AGROPYRON SPECIES	12	5	3	15	8.8
AGROPYRON TRICHOPHORUM	0	0	0	6	1.5
ORYZOPSIS HYMENOIDES	5	20	6	0	7.8
STIPA VIRIDULA	5	0	0	0	1.3
SUBTOTAL					19.3
GRASS - INVADED					
BROMUS TECTORUM	0	1	0	0	0.3
STIPA COMATA	0	0	4	8	3.0
SUBTOTAL					3.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	10	3	3.3
CHRYSOTHAMNUS NAUSEOSUS	15	5	0	0	5.0
SUBTOTAL					8.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	1	2	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					47.5
TOTAL INVADED SPECIES					4.8
GRAND TOTAL					52.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	1	55	0	0	14.0
LINUM LEWISII	10	0	1	8	4.8
SUBTOTAL					18.8
FORB - INVADED					
SENECIO MULTILOBATUS	0	0	1	0	0.3
SUBTOTAL					0.3
GRASS - PLANTED					
AGROPYRON SPECIES	5	20	30	40	23.8
AGROPYRON TRICHOPHORUM	20	15	10	15	15.0
ORYZOPSIS HYMENOIDES	0	0	10	0	2.5
SUBTOTAL					41.3
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	5	0	1.3
SITANION HYSTRIX	0	0	5	0	1.3
SUBTOTAL					2.5
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	15	3	18	3	9.8
SUBTOTAL					9.8
TOTAL PLANTED SPECIES					69.8
TOTAL INVADED SPECIES					2.8
GRAND TOTAL					72.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	12	0	35	55	25.5
LINUM LEWISII	0	8	0	3	2.8
SUBTOTAL					28.3
FORB - INVADED					
CRYPTANTHA SERICEA	0	1	0	0	0.3
MACHAERANTHERA PATTERSONII	0	0	0	12	3.0
SUBTOTAL					3.3
GRASS - PLANTED					
AGROPYRON SPECIES	5	0	2	10	4.3
AGROPYRON TRICHOPHORUM	15	0	0	5	5.0
ORYZOPSIS HYMENOIDES	10	20	5	2	9.3
STIPA VIRIDULA	0	2	0	0	0.5
SUBTOTAL					19.0
GRASS - INVADED					
SITANION HYSTRIX	2	1	5	0	2.0
SUBTOTAL					2.0
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	12	18	20	20	17.5
PURSHIA TRIDENTATA	15	0	0	0	3.8
SUBTOTAL					21.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	2	0	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					68.5
TOTAL INVADED SPECIES					5.8
GRAND TOTAL					74.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	5	3	5	0	3.3
LINUM LEWISII	1	1	7	3	3.0
SUBTOTAL					6.3
FORB - INVADED					
CHAENACTIS DOUGLASII	8	0	0	0	2.0
CRYPTANTHA SERICEA	0	2	0	2	1.0
MACHAERANTHERA PATTERSONII	0	0	0	3	0.8
SUBTOTAL					3.8
GRASS - PLANTED					
AGROPYRON SPECIES	10	20	8	8	11.5
AGROPYRON TRICHOPHORUM	0	8	0	5	3.3
ORYZOPSIS HYMENOIDES	15	0	0	5	5.0
STIPA VIRIDULA	0	5	0	0	1.3
SUBTOTAL					21.0
GRASS - INVADED					
BROMUS INERMIS	0	0	0	1	0.3
SITANION HYSTRIX	0	0	2	2	1.0
STIPA COMATA	4	5	3	5	4.3
SUBTOTAL					5.5
SHRUB - PLANTED					
CERATOIDES LANATA	1	0	0	1	0.5
CHRYSOTHAMNUS NAUSEOSUS	25	12	0	30	16.8
PURSHIA TRIDENTATA	0	3	3	0	1.5
SUBTOTAL					18.8
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	5	0	0	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					46.0
TOTAL INVADED SPECIES					10.5
GRAND TOTAL					56.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
LINUM LEWISII	20	2	2	0	6.0
SUBTOTAL					6.0
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	0	0.3
DESCURAINIA RICHARDSONII	0	0	1	3	1.0
MACHAERANTHERA PATTERSONII	8	3	1	2	3.5
UNKNOWN FORB	0	2	0	0	0.5
SUBTOTAL					5.3
GRASS - PLANTED					
AGROPYRON SPECIES	3	15	0	10	7.0
AGROPYRON TRICHOPHORUM	3	5	0	10	4.5
ORYZOPSIS HYMENOIDES	0	4	10	3	4.3
STIPA VIRIDULA	0	3	3	0	1.5
SUBTOTAL					17.3
GRASS - INVADED					
AGROPYRON CRISTATUM	10	0	0	0	2.5
BROMUS TECTORUM	0	0	1	0	0.3
SITANION HYSTRIX	0	4	0	2	1.5
STIPA COMATA	0	0	0	5	1.3
SUBTOTAL					5.5
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	5	0	1.3
CHRYSOTHAMNUS NAUSEOSUS	15	0	30	30	18.8
SUBTOTAL					20.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	5	0	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					43.3
TOTAL INVADED SPECIES					12.0
GRAND TOTAL					55.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	12	0	0	0	3.0
LINUM LEWISII	0	0	0	2	0.5
MELILOTUS OFFICINALIS	0	0	1	0	0.3
SUBTOTAL					3.8
FORB - INVADED					
CHAENACTIS DOUGLASII	0	0	1	1	0.5
CRUCIFERAE SPECIES	0	0	0	2	0.5
MACHAERANTHERA PATTERSONII	0	0	0	1	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	40	5	5	15	16.3
AGROPYRON TRICHOPHORUM	3	5	0	5	3.3
ORYZOPSIS HYMENOIDES	0	8	5	4	4.3
STIPA VIRIDULA	0	5	7	5	4.3
SUBTOTAL					28.0
GRASS - INVADED					
SITANION HYSTRIX	0	0	2	3	1.3
SUBTOTAL					1.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	0	0	2	0.5
ATRIPLEX CANESCENS	1	0	0	0	0.3
CHRYSOTHAMNUS NAUSEOSUS	15	35	15	0	16.3
SUBTOTAL					17.0
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	2	0	0	0.5
SUBTOTAL					0.5
TOTAL PLANTED SPECIES					48.8
TOTAL INVADED SPECIES					3.0
GRAND TOTAL					51.8

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=1 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	2	15	20	9.3
LINUM LEWISII	1	4	2	1	2.0
SUBTOTAL					11.3
FORB - INVADED					
CHAENACTIS DOUGLASII	0	2	3	0	1.3
CRUCIFERAE SPECIES	1	0	1	0	0.5
IPOMOPSIS AGGREGATA	2	0	0	0	0.5
MACHAERANTHERA PATTERSONII	3	0	1	0	1.0
SUBTOTAL					3.3
GRASS - PLANTED					
AGROPYRON SPECIES	3	3	2	10	4.5
AGROPYRON TRICHOPHORUM	5	5	0	8	4.5
ORYZOPSIS HYMENOIDES	10	5	0	10	6.3
STIPA VIRIDULA	1	0	0	0	0.3
SUBTOTAL					15.5
GRASS - INVADED					
SITANION HYSTRIX	0	3	4	0	1.8
STIPA COMATA	0	6	5	2	3.3
SUBTOTAL					5.0
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	15	0	0	2	4.3
CHRYSOTHAMNUS NAUSEOSUS	0	5	18	3	6.5
PURSHIA TRIDENTATA	0	0	0	18	4.5
SUBTOTAL					15.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	3	0	0.8
SUBTOTAL					0.8
TOTAL PLANTED SPECIES					42.0
TOTAL INVADED SPECIES					9.0
GRAND TOTAL					51.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=2 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	0	0	3	30	8.3
HEDYSARUM UTAHENSIS	0	0	3	0	0.8
LINUM LEWISII	2	2	0	0	1.0
SUBTOTAL					10.0
FORB - INVADED					
CHAENACTIS DOUGLASII	1	0	0	0	0.3
MACHAERANTHERA PATTERSONII	0	0	0	4	1.0
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	25	25	30	10	22.5
AGROPYRON TRICHOPHORUM	5	8	5	0	4.5
ORYZOPSIS HYMENOIDES	5	15	5	0	6.3
STIPA VIRIDULA	2	2	0	5	2.3
SUBTOTAL					35.5
GRASS - INVADED					
AGROPYRON CRISTATUM	0	0	0	15	3.8
SITANION HYSTRIX	2	0	0	0	0.5
SUBTOTAL					4.3
SHRUB - PLANTED					
CHRYSOTHAMNUS NAUSEOSUS	5	10	25	35	18.8
PURSHIA TRIDENTATA	0	0	10	0	2.5
SUBTOTAL					21.3
SHRUB - INVADED					
GUTIERREZIA SAROTHRAE	0	0	5	0	1.3
SUBTOTAL					1.3
TOTAL PLANTED SPECIES					66.8
TOTAL INVADED SPECIES					6.8
GRAND TOTAL					73.5

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-2
REPORT YEAR= 1983

BLOCK=3 MULCH TREATMENT= STRAW-NETTING
FERTILIZER TREATMENT=FERTILIZER-SOWING/1ST GROWING

SPECIES	SUBPLOTS #5	#6	#7	#8	TREATMENT PLOT AVERAGE
FORB - PLANTED					
ASTRAGALUS CICER	25	0	30	35	22.5
HEDYSARUM UTAHENSIS	0	0	5	0	1.3
LINUM LEWISII	0	3	0	0	0.8
SUBTOTAL					24.5
FORB - INVADED					
MACHAERANTHERA PATTERSONII	1	2	0	1	1.0
SENECIO MULTILOBATUS	1	0	0	0	0.3
SUBTOTAL					1.3
GRASS - PLANTED					
AGROPYRON SPECIES	35	5	35	40	28.8
AGROPYRON TRICHOPHORUM	5	0	10	5	5.0
ORYZOPSIS HYMENOIDES	0	7	0	5	3.0
STIPA VIRIDULA	0	1	2	0	0.8
SUBTOTAL					37.5
GRASS - INVADED					
BROMUS TECTORUM	0	0	1	0	0.3
SUBTOTAL					0.3
SHRUB - PLANTED					
ARTEMISIA TRIDENTATA	0	35	0	10	11.3
CERATOIDES LANATA	0	0	0	1	0.3
CHRYSOTHAMNUS NAUSEOSUS	3	0	20	0	5.8
PURSHIA TRIDENTATA	0	8	0	0	2.0
SUBTOTAL					19.3
TOTAL PLANTED SPECIES					81.3
TOTAL INVADED SPECIES					1.5
GRAND TOTAL					82.8

APPENDIX 6-1.4

Analyses for Plot R-2 Experimental Revegetation Data

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-8. Block designations are presented on Figure 6-2.

RIO BLANCO OIL SHALE COMPANY
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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
REPORT YEAR=1983 GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=21 MSE=.0010315
HARMONIC MEAN OF CELL SIZES=20.3774

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	BLOCK
A	0.034739	24	1
B	0.011126	20	2
B			
B	0.009723	18	3

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-9. Block, mulch and fertilizer designations are presented on Figure 6-2.

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=SHRUB PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=35 MSE=2.1E-04
HARMONIC MEAN OF CELL SIZES=23.8162

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	BLOCK
A	0.026766	30	1
B	0.006974	19	2
B			
B	0.006900	25	3

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1088 MSE=.0030334
HARMONIC MEAN OF CELL SIZES=281.993

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	MULCH
	A	0.030968	247	1
	A			
	A	0.026870	287	4
	A			
B	A	0.021527	311	3
B				
B		0.014460	291	2

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1088 MSE=.0030334
HARMONIC MEAN OF CELL SIZES=283.459

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	FERTILIZ
	A	0.029878	272	4
	A			
B	A	0.023806	282	3
B	A			
B	A	0.021455	277	2
B				
B		0.017966	305	1

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=SHRUB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=885 MSE=.0018386
HARMONIC MEAN OF CELL SIZES=232.967

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	MULCH
	A	0.033517	233	2
	A			
B	A	0.027555	222	1
B				
B		0.021445	233	4
B				
B		0.020705	245	3

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=295 MSE=3.6E-04
HARMONIC MEAN OF CELL SIZES=113.227

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	BLOCK
A	0.018144	123	1
B	0.010282	99	3
B			
B	0.010105	121	2

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THREE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN BLOCKS, MULCHING AND FERTILIZER TREATMENTS
FOR ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1297 MSE=0.001114
HARMONIC MEAN OF CELL SIZES=448.118

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	BLOCK
A	0.032329	449	3
A			
A	0.031467	460	2
B	0.026231	436	1

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-10.

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EXPERIMENTAL REVEGETATION STUDIES - R2

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=SHPUB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=926 MSE=.0014334
HARMONIC MEAN OF CELL SIZES=130.07

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.074863	122	1983
	B	0.029679	170	1982
	B			
	B	0.026160	114	1980
	B			
C	B	0.024411	110	1981
C				
C	D	0.016034	140	1978
	D			
E	D	0.010295	119	1977
E				
E		0.004304	158	1976

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ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=336 MSE=3.0E-04
HARMONIC MEAN OF CELL SIZES=33.1018

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.031455	40	1976
B	0.019859	62	1983
C	0.010476	74	1982
C			
C	0.009438	40	1980
C			
C	0.007439	81	1981
C			
C	0.005000	35	1978
C			
C	0.004773	11	1977

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R2

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1338 MSE=8.9E-04
HARMONIC MEAN OF CELL SIZES=190.858

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.058555	180	1983
B	0.039338	184	1980
B			
B	0.038753	173	1982
C	0.029538	187	1981
D	0.020666	188	1978
D			
D	0.020228	214	1977
E	0.010080	219	1976

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R2

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1129 MSE=.0024676
HARMONIC MEAN OF CELL SIZES=149.205

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.076029	135	1977
	B	0.056070	111	1978
	C	0.022265	121	1976
	C			
D	C	0.013893	236	1980
D				
D		0.008656	132	1983
D				
D		0.007159	242	1981
D				
D		0.005833	159	1982

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R2

ONE-WAY ANALYSIS OF VARIANCE
COMPARING ARCSINE TRANSFORMED COVER ESTIMATES
BETWEEN ALL YEARS SAMPLED
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=954 MSE=.0011271
HARMONIC MEAN OF CELL SIZES=133.071

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.059183	124	1983
B	0.044687	106	1982
C	0.032061	124	1980
C			
C	0.027918	126	1981
D	0.009453	169	1977
D			
D	0.009231	130	1978
D			
D	0.007335	182	1976

APPENDIX 6-1.5

Plot R-3 Experimental Revegetation Data

Cover Data

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 1
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	2	4	12	6.0
SUBTOTAL				6.0
GRASS - PLANTED				
AGROPYRON SPECIES	15	15	30	20.0
AGROPYRON TRICHOPHORUM	15	8	5	9.3
ORYZOPSIS HYMENOIDES	0	1	0	0.3
SUBTOTAL				29.7
GRASS - INVADED				
BROMUS TECTORUM	10	1	1	4.0
SUBTOTAL				4.0
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	0	3	1.0
ATRIPLEX CANESCENS	0	2	0	0.7
CERATOIDES LANATA	18	20	8	15.3
CHRYSOTHAMNUS NAUSEOSUS	15	0	10	8.3
PURSHIA TRIDENTATA	0	1	0	0.3
SUBTOTAL				25.7
TOTAL PLANTED SPECIES				61.3
TOTAL INVADED SPECIES				4.0
GRAND TOTAL				65.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 2
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	10	2	4.0
HEDYSARUM UTAHENSIS	8	0	0	2.7
LINUM LEWISII	1	0	0	0.3
MELILOTUS OFFICINALIS	0	1	0	0.3
SUBTOTAL				7.3
FORB - INVADED				
UNKNOWN FORB	1	1	0	0.7
SUBTOTAL				0.7
GRASS - PLANTED				
AGROPYRON SPECIES	20	15	12	15.7
AGROPYRON TRICHOPHORUM	8	5	10	7.7
BROMUS INERMIS	2	1	2	1.7
ORYZOPSIS HYMENOIDES	1	0	0	0.3
STIPA VIRIDULA	1	1	0	0.7
SUBTOTAL				26.0
GRASS - INVADED				
BROMUS TECTORUM	2	0	0	0.7
SUBTOTAL				0.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	20	10	8	12.7
CERATOIDES LANATA	15	12	12	13.0
CHRYSOTHAMNUS NAUSEOSUS	0	0	8	2.7
PURSHIA TRIDENTATA	2	2	4	2.7
SUBTOTAL				31.0
TOTAL PLANTED SPECIES				64.3
TOTAL INVADED SPECIES				1.3
GRAND TOTAL				65.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 3
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	12	3	5.0
HEDYSARUM UTAHENSIS	0	3	0	1.0
SUBTOTAL				6.0
FORB - INVADED				
CRUCIFERAE SPECIES	0	0	1	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	25	10	20	18.3
AGROPYRON TRICHOPHORUM	5	15	5	8.3
BROMUS INERMIS	3	3	1	2.3
ORYZOPSIS HYMENOIDES	0	5	1	2.0
SUBTOTAL				31.0
GRASS - INVADED				
BROMUS TECTORUM	5	2	1	2.7
SUBTOTAL				2.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	15	15	8	12.7
CAMPHOROSMA MONSPELIACA	0	0	3	1.0
CERATOIDES LANATA	12	22	10	14.7
PURSHIA TRIDENTATA	0	0	4	1.3
SUBTOTAL				29.7
TOTAL PLANTED SPECIES				66.7
TOTAL INVADED SPECIES				3.0
GRAND TOTAL				69.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 4
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	20	5	10	11.7
HEDYSARUM UTAHENSIS	0	4	0	1.3
SUBTOTAL				13.0
GRASS - PLANTED				
AGROPYRON SPECIES	0	10	30	13.3
AGROPYRON TRICHOPHORUM	0	10	8	6.0
BROMUS INERMIS	3	2	1	2.0
ORYZOPSIS HYMENOIDES	0	2	0	0.7
SUBTOTAL				22.0
GRASS - INVADED				
BROMUS TECTORUM	5	8	1	4.7
SUBTOTAL				4.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	20	25	1	15.3
CERATOIDES LANATA	15	2	2	6.3
PURSHIA TRIDENTATA	0	0	1	0.3
SUBTOTAL				22.0
TOTAL PLANTED SPECIES				57.0
TOTAL INVADED SPECIES				4.7
GRAND TOTAL				61.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 5
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	12	8	14	11.3
LINUM LEWISII	0	0	1	0.3
SUBTOTAL				11.7
GRASS - PLANTED				
AGROPYRON SPECIES	25	20	20	21.7
AGROPYRON TRICHOPHORUM	15	15	10	13.3
BROMUS INERMIS	3	0	3	2.0
STIPA VIRIDULA	0	1	2	1.0
SUBTOTAL				38.0
GRASS - INVADED				
BROMUS TECTORUM	5	1	1	2.3
SUBTOTAL				2.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	2	1	2	1.7
CERATOIDES LANATA	3	2	0	1.7
PURSHIA TRIDENTATA	2	10	1	4.3
SUBTOTAL				7.7
TOTAL PLANTED SPECIES				57.3
TOTAL INVADED SPECIES				2.3
GRAND TOTAL				59.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 6
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	35	3	12.7
SUBTOTAL				12.7
FORB - INVADED				
CRUCIFERAE SPECIES	1	0	0	0.3
TRAGOPOGON SPECIES	0	2	0	0.7
TRIFOLIUM GYMNOCARPON	0	1	0	0.3
SUBTOTAL				1.3
GRASS - PLANTED				
AGROPYRON SPECIES	20	3	15	12.7
AGROPYRON TRICHOPHORUM	8	2	10	6.7
BROMUS INERMIS	8	6	0	4.7
ORYZOPSIS HYMENOIDES	1	0	0	0.3
SUBTOTAL				24.3
GRASS - INVADED				
BROMUS TECTORUM	3	2	3	2.7
PHLEUM PRATENSE	0	3	0	1.0
POA SPECIES	8	10	5	7.7
SUBTOTAL				11.3
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	0	8	2.7
ATRIPLEX CANESCENS	8	0	1	3.0
CERATOIDES LANATA	3	10	4	5.7
CHRYSOTHAMNUS NAUSEOSUS	4	0	0	1.3
PURSHIA TRIDENTATA	5	0	2	2.3
SUBTOTAL				15.0
TOTAL PLANTED SPECIES				52.0
TOTAL INVADED SPECIES				12.7
GRAND TOTAL				64.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 7
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	1	0	0	0.3
SUBTOTAL				0.3
FORB - INVADED				
DESCURAINIA RICHARDSONII	1	0	0	0.3
MACHAERANTHERA PATTERSONII	0	3	0	1.0
SPHAERALCEA COCCINEA	0	1	0	0.3
UNKNOWN FORB	2	0	0	0.7
SUBTOTAL				2.3
GRASS - PLANTED				
ACROPYRON SPECIES	5	4	15	8.0
AGROPYRON TRICHOPHORUM	12	4	5	7.0
BROMUS INERMIS	10	0	4	4.7
ORYZOPSIS HYMENOIDES	8	5	3	5.3
SUBTOTAL				25.0
GRASS - INVADED				
BROMUS TECTORUM	15	1	2	6.0
SUBTOTAL				6.0
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	0	8	2.7
ATRIPLEX CANESCENS	30	0	0	10.0
CERATOIDES LANATA	0	15	20	11.7
CHRYSOTHAMNUS NAUSEOSUS	6	0	0	2.0
SUBTOTAL				26.3
TOTAL PLANTED SPECIES				51.7
TOTAL INVADED SPECIES				8.3
GRAND TOTAL				60.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 8
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	15	20	30	21.7
HEDYSARUM UTAHENSIS	0	0	3	1.0
LINUM LEWISII	0	1	0	0.3
SUBTOTAL				23.0
FORB - INVADED				
DESCURAINIA RICHARDSONII	1	0	0	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	8	10	25	14.3
AGROPYRON TRICHOPHORUM	5	12	15	10.7
BROMUS INERMIS	2	0	0	0.7
ORYZOPSIS HYMENOIDES	0	5	0	1.7
SUBTOTAL				27.3
GRASS - INVADED				
BROMUS TECTORUM	2	0	0	0.7
POA SPECIES	5	0	0	1.7
SUBTOTAL				2.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	0	4	1.3
CERATOIDES LANATA	0	0	18	6.0
CHRYSOTHAMNUS NAUSEOSUS	18	25	0	14.3
PURSHIA TRIDENTATA	0	0	3	1.0
SUBTOTAL				22.7
TOTAL PLANTED SPECIES				73.0
TOTAL INVADED SPECIES				2.7
GRAND TOTAL				75.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 9
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	0	2	0.7
SUBTOTAL				0.7
FORB - INVADED				
MACHAERANTHERA PATTERSONII	2	0	0	0.7
SUBTOTAL				0.7
GRASS - PLANTED				
AGROPYRON SPECIES	0	5	15	6.7
AGROPYRON TRICHOPHORUM	0	10	0	3.3
BROMUS INERMIS	3	4	3	3.3
ORYZOPSIS HYMENOIDES	2	10	2	4.7
STIPA VIRIDULA	4	5	0	3.0
SUBTOTAL				21.0
GRASS - INVADED				
BROMUS TECTORUM	20	20	1	13.7
POA SPECIES	20	3	0	7.7
SUBTOTAL				21.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	2	5	12	6.3
CAMPHOROSMA MONSPELIACA	8	0	0	2.7
CERATOIDES LANATA	0	0	8	2.7
CHRYSOTHAMNUS NAUSEOSUS	0	0	10	3.3
PURSHIA TRIDENTATA	0	0	2	0.7
SUBTOTAL				15.7
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	0	4	0	1.3
SUBTOTAL				1.3
TOTAL PLANTED SPECIES				37.3
TOTAL INVADED SPECIES				23.3
GRAND TOTAL				60.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 10
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	10	25	0	11.7
SUBTOTAL				11.7
FORB - INVADED				
MACHAERANTHERA PATTERSONII	0	2	0	0.7
TARAXACUM OFFICINALE	2	0	0	0.7
TRIFOLIUM GYMNOCARPON	0	0	1	0.3
SUBTOTAL				1.7
GRASS - PLANTED				
AGROPYRON SPECIES	10	5	15	10.0
AGROPYRON TRICHOPHORUM	15	8	10	11.0
BROMUS INERMIS	2	3	1	2.0
ORYZOPSIS HYMENOIDES	5	2	0	2.3
STIPA VIRIDULA	0	6	2	2.7
SUBTOTAL				28.0
GRASS - INVADED				
AGROPYRON CRISTATUM	0	5	0	1.7
BROMUS TECTORUM	20	12	4	12.0
POA SPECIES	5	0	0	1.7
SUBTOTAL				15.3
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	4	0	1.3
ATRIPLEX CANESCENS	3	3	3	3.0
CERATOIDES LANATA	12	0	3	5.0
CHRYSOTHAMNUS NAUSEOSUS	0	0	10	3.3
PURSHIA TRIDENTATA	0	3	0	1.0
SUBTOTAL				13.7
TOTAL PLANTED SPECIES				53.3
TOTAL INVADED SPECIES				17.0
GRAND TOTAL				70.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 11
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	28	20	25	24.3
SUBTOTAL				24.3
FORB - INVADED				
MACHAERANTHERA PATTERSONII	0	0	1	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	17	8	10	11.7
AGROPYRON TRICHOPHORUM	8	0	20	9.3
BROMUS INERMIS	0	0	4	1.3
ORYZOPSIS HYMENOIDES	3	4	2	3.0
STIPA VIRIDULA	0	2	0	0.7
SUBTOTAL				26.0
GRASS - INVADED				
BROMUS TECTORUM	25	3	1	9.7
SUBTOTAL				9.7
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	23	0	7.7
ATRIPLEX CANESCENS	0	0	3	1.0
CERATOIDES LANATA	0	5	2	2.3
CHRYSOTHAMNUS NAUSEOSUS	12	0	0	4.0
PURSHIA TRIDENTATA	0	0	2	0.7
SUBTOTAL				15.7
TOTAL PLANTED SPECIES				66.0
TOTAL INVADED SPECIES				10.0
GRAND TOTAL				76.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 12
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= HIGH SEEDING RATE (28 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	10	4	0	4.7
LINUM LEWISII	0	0	1	0.3
SUBTOTAL				5.0
GRASS - PLANTED				
AGROPYRON SPECIES	15	25	20	20.0
AGROPYRON TRICHOPHORUM	10	10	10	10.0
BROMUS INERMIS	0	2	3	1.7
ORYZOPSIS HYMENOIDES	2	0	0	0.7
STIPA VIRIDULA	2	0	0	0.7
SUBTOTAL				33.0
GRASS - INVADED				
BROMUS TECTORUM	1	0	2	1.0
SUBTOTAL				1.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	0	2	0.7
CERATOIDES LANATA	0	1	2	1.0
PURSHIA TRIDENTATA	3	1	0	1.3
SUBTOTAL				3.0
TOTAL PLANTED SPECIES				41.0
TOTAL INVADED SPECIES				1.0
GRAND TOTAL				42.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 13
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	24	45	15	28.0
SUBTOTAL				28.0
FORB - INVADED				
CRUCIFERAE SPECIES	1	0	0	0.3
SPHAERALCEA COCCINEA	0	2	0	0.7
SUBTOTAL				1.0
GRASS - PLANTED				
AGROPYRON SPECIES	5	15	15	11.7
AGROPYRON TRICHOPHORUM	2	15	5	7.3
BROMUS INERMIS	0	3	0	1.0
ORYZOPSIS HYMENOIDES	5	0	0	1.7
STIPA VIRIDULA	0	0	1	0.3
SUBTOTAL				22.0
GRASS - INVADED				
AGROPYRON CRISTATUM	5	0	0	1.7
BROMUS TECTORUM	15	0	3	6.0
SITANION HYSTRIX	0	0	3	1.0
SUBTOTAL				8.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	55	0	18.3
CERATOIDES LANATA	0	5	0	1.7
CHRYSOTHAMNUS NAUSEOSUS	18	0	0	6.0
SUBTOTAL				26.0
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	1	0	0	0.3
SUBTOTAL				0.3
TOTAL PLANTED SPECIES				76.0
TOTAL INVADED SPECIES				10.0
GRAND TOTAL				86.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 14
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	20	6	0	8.7
HEDYSARUM UTAHENSIS	2	0	0	0.7
SUBTOTAL				9.3
GRASS - PLANTED				
AGROPYRON SPECIES	20	15	20	18.3
AGROPYRON TRICHOPHORUM	0	5	10	5.0
BROMUS INERMIS	3	0	2	1.7
STIPA VIRIDULA	3	0	0	1.0
SUBTOTAL				26.0
GRASS - INVADED				
AGROPYRON CRISTATUM	5	20	8	11.0
SUBTOTAL				11.0
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	0	15	5.0
ATRIPLEX CANESCENS	15	0	10	8.3
CERATOIDES LANATA	0	10	2	4.0
PURSHIA TRIDENTATA	0	0	2	0.7
SUBTOTAL				18.0
TOTAL PLANTED SPECIES				53.3
TOTAL INVADED SPECIES				11.0
GRAND TOTAL				64.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 15
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	35	20	6	20.3
SUBTOTAL				20.3
GRASS - PLANTED				
AGROPYRON SPECIES	8	20	10	12.7
AGROPYRON TRICHOPHORUM	15	5	10	10.0
BROMUS INERMIS	0	0	4	1.3
ORYZOPSIS HYMENOIDES	3	0	1	1.3
STIPA VIRIDULA	0	5	0	1.7
SUBTOTAL				27.0
GRASS - INVADED				
BROMUS TECTORUM	15	15	3	11.0
SUBTOTAL				11.0
SHRUB - PLANTED				
CERATOIDES LANATA	5	7	10	7.3
PURSHIA TRIDENTATA	0	1	0	0.3
SUBTOTAL				7.7
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	2	0	0	0.7
SUBTOTAL				0.7
TOTAL PLANTED SPECIES				55.0
TOTAL INVADED SPECIES				11.7
GRAND TOTAL				66.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 16
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	25	10	8	14.3
HEDYSARUM UTAHENSIS	0	0	2	0.7
SUBTOTAL				15.0
GRASS - PLANTED				
AGROPYRON SPECIES	5	10	15	10.0
AGROPYRON TRICHOPHORUM	0	0	10	3.3
BROMUS INERMIS	4	3	0	2.3
SUBTOTAL				15.7
GRASS - INVADED				
AGROPYRON CRISTATUM	18	25	10	17.7
BROMUS TECTORUM	0	1	0	0.3
SUBTOTAL				18.0
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	0	10	3.3
ATRIPLEX CANESCENS	0	1	0	0.3
CERATOIDES LANATA	3	0	2	1.7
PURSHIA TRIDENTATA	0	0	1	0.3
SUBTOTAL				5.7
TOTAL PLANTED SPECIES				36.3
TOTAL INVADED SPECIES				18.0
GRAND TOTAL				54.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 17
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	20	2	0	7.3
SUBTOTAL				7.3
FORB - INVADED				
MACHAERANTHERA PATTERSONII	1	2	0	1.0
TRIFOLIUM GYMNOCARPON	0	0	1	0.3
SUBTOTAL				1.3
GRASS - PLANTED				
AGROPYRON SPECIES	15	15	10	13.3
AGROPYRON TRICHOPHORUM	5	5	0	3.3
BROMUS INERMIS	3	0	0	1.0
ORYZOPSIS HYMENOIDES	0	3	4	2.3
SUBTOTAL				20.0
GRASS - INVADED				
BROMUS TECTORUM	15	20	25	20.0
SITANION HYSTRIX	5	0	0	1.7
SUBTOTAL				21.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	15	0	5.0
SUBTOTAL				5.0
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	0	2	12	4.7
SUBTOTAL				4.7
TOTAL PLANTED SPECIES				32.3
TOTAL INVADED SPECIES				27.7
GRAND TOTAL				60.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 18
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	10	15	8.3
SUBTOTAL				8.3
GRASS - PLANTED				
AGROPYRON SPECIES	10	10	25	15.0
AGROPYRON TRICHOPHORUM	3	8	25	12.0
BROMUS INERMIS	3	0	0	1.0
SUBTOTAL				28.0
GRASS - INVADED				
AGROPYRON CRISTATUM	0	10	0	3.3
BROMUS TECTORUM	15	12	0	9.0
POA SPECIES	25	10	0	11.7
SITANION HYSTRIX	10	0	0	3.3
SUBTOTAL				27.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	15	0	0	5.0
CERATOIDES LANATA	0	0	5	1.7
CHRYSOTHAMNUS NAUSEOSUS	0	0	5	1.7
SUBTOTAL				8.3
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	1	0	0	0.3
SUBTOTAL				0.3
TOTAL PLANTED SPECIES				44.7
TOTAL INVADED SPECIES				27.7
GRAND TOTAL				72.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 19
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	25	3	5	11.0
SUBTOTAL				11.0
FORB - INVADED				
PHYSARIA FLORIBUNDA	0	0	1	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	15	10	15	13.3
AGROPYRON TRICHOPHORUM	0	8	5	4.3
ORYZOPSIS HYMENOIDES	4	0	0	1.3
STIPA VIRIDULA	0	5	0	1.7
SUBTOTAL				20.7
GRASS - INVADED				
BROMUS TECTORUM	20	3	0	7.7
SITANION HYSTRIX	8	0	0	2.7
SUBTOTAL				10.3
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	0	12	4.0
ATRIPLEX BONNEVILLENSIS	0	12	0	4.0
CAMPHOROSMA MONSPELIACA	3	0	0	1.0
CERATOIDES LANATA	0	15	10	8.3
CHRYSOTHAMNUS NAUSEOSUS	0	0	1	0.3
PURSHIA TRIDENTATA	2	0	0	0.7
SUBTOTAL				18.3
TOTAL PLANTED SPECIES				50.0
TOTAL INVADED SPECIES				10.7
GRAND TOTAL				60.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 20
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	10	0	3	4.3
SUBTOTAL				4.3
FORB - INVADED				
DESCURAINIA RICHARDSONII	1	0	0	0.3
SPHAERALCEA COCCINEA	0	3	0	1.0
SUBTOTAL				1.3
GRASS - PLANTED				
AGROPYRON SPECIES	10	10	30	16.7
AGROPYRON TRICHOPHORUM	8	5	5	6.0
BROMUS INERMIS	3	0	0	1.0
STIPA VIRIDULA	0	0	5	1.7
SUBTOTAL				25.3
GRASS - INVADED				
AGROPYRON CRISTATUM	0	10	0	3.3
BROMUS TECTORUM	5	10	2	5.7
SUBTOTAL				9.0
SHRUB - PLANTED				
ATRIPLEX BONNEVILLENSIS	0	0	4	1.3
ATRIPLEX CANESCENS	0	30	6	12.0
CERATOIDES LANATA	5	0	4	3.0
CHRYSOTHAMNUS NAUSEOSUS	18	0	0	6.0
PURSHIA TRIDENTATA	0	0	3	1.0
SUBTOTAL				23.3
TOTAL PLANTED SPECIES				53.0
TOTAL INVADED SPECIES				10.3
GRAND TOTAL				63.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 21
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	10	0	12	7.3
SUBTOTAL				7.3
GRASS - PLANTED				
AGROPYRON SPECIES	15	15	25	18.3
AGROPYRON TRICHOPHORUM	0	10	5	5.0
BROMUS INERMIS	0	0	3	1.0
ORYZOPSIS HYMENOIDES	8	0	0	2.7
STIPA VIRIDULA	2	4	2	2.7
SUBTOTAL				29.7
GRASS - INVADED				
AGROPYRON CRISTATUM	2	3	0	1.7
BROMUS TECTORUM	15	5	10	10.0
SITANION HYSTRIX	3	0	0	1.0
SUBTOTAL				12.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	10	0	3.3
CERATOIDES LANATA	15	0	10	8.3
SUBTOTAL				11.7
TOTAL PLANTED SPECIES				48.7
TOTAL INVADED SPECIES				12.7
GRAND TOTAL				61.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 22
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	2	20	10	10.7
SUBTOTAL				10.7
GRASS - PLANTED				
AGROPYRON SPECIES	8	20	25	17.7
AGROPYRON TRICHOPHORUM	2	10	5	5.7
ORYZOPSIS HYMENOIDES	5	0	0	1.7
STIPA VIRIDULA	0	5	3	2.7
SUBTOTAL				27.7
GRASS - INVADED				
BROMUS TECTORUM	10	0	5	5.0
SUBTOTAL				5.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	0	3	1.0
CERATOIDES LANATA	15	12	15	14.0
CERCOCARPUS MONTANUS	2	0	0	0.7
PURSHIA TRIDENTATA	0	3	2	1.7
SUBTOTAL				17.3
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	4	0	0	1.3
SUBTOTAL				1.3
TOTAL PLANTED SPECIES				55.7
TOTAL INVADED SPECIES				6.3
GRAND TOTAL				62.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 23
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	3	8	5	5.3
SUBTOTAL				5.3
FORB - INVADED				
DESCURAINIA RICHARDSONII	0	0	1	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	5	15	15	11.7
AGROPYRON TRICHOPHORUM	0	5	5	3.3
BROMUS INERMIS	4	0	0	1.3
ORYZOPSIS HYMENOIDES	10	0	5	5.0
STIPA VIRIDULA	0	3	3	2.0
SUBTOTAL				23.3
GRASS - INVADED				
AGROPYRON CRISTATUM	5	0	0	1.7
BROMUS TECTORUM	10	10	15	11.7
SUBTOTAL				13.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	10	5	5.0
CERATOIDES LANATA	12	8	4	8.0
CHRYSOTHAMNUS NAUSEOSUS	2	0	12	4.7
PURSHIA TRIDENTATA	0	0	3	1.0
SUBTOTAL				18.7
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	25	12	0	12.3
SUBTOTAL				12.3
TOTAL PLANTED SPECIES				47.3
TOTAL INVADED SPECIES				26.0
GRAND TOTAL				73.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 24
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= MEDIUM SEEDING RATE (22 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	SUBPLOTS #5	SUBPLOTS #6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	30	5	11.7
LINUM LEWISII	1	0	0	0.3
SUBTOTAL				12.0
GRASS - PLANTED				
AGROPYRON SPECIES	20	15	25	20.0
AGROPYRON TRICHOPHORUM	15	5	5	8.3
BROMUS INERMIS	3	6	3	4.0
ORYZOPSIS HYMENOIDES	6	3	0	3.0
SUBTOTAL				35.3
GRASS - INVADED				
BROMUS TECTORUM	10	0	3	4.3
SUBTOTAL				4.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	0	1	0.3
CERATOIDES LANATA	20	10	20	16.7
PURSHIA TRIDENTATA	0	4	2	2.0
SUBTOTAL				19.0
TOTAL PLANTED SPECIES				66.3
TOTAL INVADED SPECIES				4.3
GRAND TOTAL				70.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 25
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	5	15	6.7
SUBTOTAL				6.7
GRASS - PLANTED				
AGROPYRON SPECIES	10	20	20	16.7
AGROPYRON TRICHOPHORUM	5	0	10	5.0
BROMUS INERMIS	6	10	5	7.0
ORYZOPSIS HYMENOIDES	3	0	0	1.0
SUBTOTAL				29.7
GRASS - INVADED				
AGROPYRON CRISTATUM	15	4	0	6.3
BROMUS TECTORUM	10	5	5	6.7
SITANION HYSTRIX	0	2	3	1.7
SUBTOTAL				14.7
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	15	0	0	5.0
ATRIPLEX CANESCENS	0	0	20	6.7
CERATOIDES LANATA	4	15	0	6.3
SUBTOTAL				18.0
TOTAL PLANTED SPECIES				54.3
TOTAL INVADED SPECIES				14.7
GRAND TOTAL				69.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 26
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	4	12	5.3
SUBTOTAL				5.3
GRASS - PLANTED				
AGROPYRON SPECIES	5	20	20	15.0
AGROPYRON TRICHOPHORUM	8	15	5	9.3
BROMUS INERMIS	4	3	5	4.0
STIPA VIRIDULA	0	0	3	1.0
SUBTOTAL				29.3
GRASS - INVADED				
AGROPYRON CRISTATUM	30	10	15	18.3
BROMUS TECTORUM	0	0	5	1.7
SUBTOTAL				20.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	10	4	4.7
CERATOIDES LANATA	0	5	0	1.7
CHRYSOTHAMNUS NAUSEOSUS	5	2	0	2.3
PURSHIA TRIDENTATA	0	0	5	1.7
SUBTOTAL				10.3
TOTAL PLANTED SPECIES				45.0
TOTAL INVADED SPECIES				20.0
GRAND TOTAL				65.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 27
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	15	25	0	13.3
SUBTOTAL				13.3
GRASS - PLANTED				
AGROPYRON SPECIES	25	15	15	18.3
AGROPYRON TRICHOPHORUM	5	5	5	5.0
BROMUS INERMIS	3	0	5	2.7
ORYZOPSIS HYMENOIDES	3	0	3	2.0
STIPA VIRIDULA	0	0	8	2.7
SUBTOTAL				30.7
GRASS - INVADED				
AGROPYRON CRISTATUM	10	5	0	5.0
BROMUS TECTORUM	0	8	4	4.0
SUBTOTAL				9.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	15	0	5.0
CERATOIDES LANATA	5	2	0	2.3
SUBTOTAL				7.3
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	0	0	2	0.7
SUBTOTAL				0.7
TOTAL PLANTED SPECIES				51.3
TOTAL INVADED SPECIES				9.7
GRAND TOTAL				61.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 28
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	8	30	18	18.7
SUBTOTAL				18.7
GRASS - PLANTED				
AGROPYRON SPECIES	5	10	15	10.0
AGROPYRON TRICHOPHORUM	15	5	3	7.7
BROMUS INERMIS	0	0	1	0.3
STIPA VIRIDULA	6	6	4	5.3
SUBTOTAL				23.3
GRASS - INVADED				
AGROPYRON CRISTATUM	12	0	5	5.7
BROMUS TECTORUM	8	8	8	8.0
SUBTOTAL				13.7
SHRUB - PLANTED				
ATRIPLEX CANESCENS	15	0	0	5.0
SUBTOTAL				5.0
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	0	0	12	4.0
SUBTOTAL				4.0
TOTAL PLANTED SPECIES				47.0
TOTAL INVADED SPECIES				17.7
GRAND TOTAL				64.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 29
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	15	3	25	14.3
SUBTOTAL				14.3
GRASS - PLANTED				
AGROPYRON SPECIES	15	20	20	18.3
AGROPYRON TRICHOPHORUM	5	5	0	3.3
ORYZOPSIS HYMENOIDES	5	0	6	3.7
STIPA VIRIDULA	0	0	3	1.0
SUBTOTAL				26.3
GRASS - INVADED				
AGROPYRON CRISTATUM	12	20	0	10.7
BROMUS TECTORUM	0	0	2	0.7
SUBTOTAL				11.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	8	0	2.7
CERATOIDES LANATA	0	10	0	3.3
PURSHIA TRIDENTATA	6	2	0	2.7
SUBTOTAL				8.7
TOTAL PLANTED SPECIES				49.3
TOTAL INVADED SPECIES				11.3
GRAND TOTAL				60.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 30
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	20	5	2	9.0
SUBTOTAL				9.0
GRASS - PLANTED				
AGROPYRON SPECIES	20	20	30	23.3
AGROPYRON TRICHOPHORUM	5	10	10	8.3
ORYZOPSIS HYMENOIDES	0	0	4	1.3
STIPA VIRIDULA	3	0	8	3.7
SUBTOTAL				36.7
GRASS - INVADED				
AGROPYRON CRISTATUM	0	6	0	2.0
BROMUS TECTORUM	8	5	0	4.3
SUBTOTAL				6.3
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	12	8	6.7
CERATOIDES LANATA	30	5	12	15.7
PURSHIA TRIDENTATA	0	2	0	0.7
SUBTOTAL				23.0
TOTAL PLANTED SPECIES				68.7
TOTAL INVADED SPECIES				6.3
GRAND TOTAL				75.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 31
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	5	8	10	7.7
SUBTOTAL				7.7
GRASS - PLANTED				
AGROPYRON SPECIES	20	20	25	21.7
AGROPYRON TRICHOPHORUM	5	15	15	11.7
BROMUS INERMIS	0	3	5	2.7
STIPA VIRIDULA	0	2	0	0.7
SUBTOTAL				36.7
GRASS - INVADED				
BROMUS TECTORUM	6	1	8	5.0
SITANION HYSTRIX	0	3	0	1.0
SUBTOTAL				6.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	0	3	1.0
CAMPHOROSMA MONSPELIACA	3	0	0	1.0
CERATOIDES LANATA	0	0	5	1.7
SUBTOTAL				3.7
TOTAL PLANTED SPECIES				48.0
TOTAL INVADED SPECIES				6.0
GRAND TOTAL				54.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON
EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 32
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	15	10	3	9.3
SUBTOTAL				9.3
GRASS - PLANTED				
AGROPYRON SPECIES	15	5	5	8.3
AGROPYRON TRICHOPHORUM	5	10	10	8.3
BROMUS INERMIS	4	5	0	3.0
ORYZOPSIS HYMENOIDES	2	0	0	0.7
SUBTOTAL				20.3
GRASS - INVADED				
AGROPYRON CRISTATUM	0	5	0	1.7
BROMUS TECTORUM	10	0	2	4.0
SUBTOTAL				5.7
SHRUB - PLANTED				
ATRIPLEX BONNEVILLENSIS	0	3	0	1.0
CERATOIDES LANATA	0	0	2	0.7
CHRYSOTHAMNUS NAUSEOSUS	0	0	65	21.7
PURSHIA TRIDENTATA	4	0	2	2.0
SUBTOTAL				25.3
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	0	3	0	1.0
SUBTOTAL				1.0
TOTAL PLANTED SPECIES				55.0
TOTAL INVADED SPECIES				6.7
GRAND TOTAL				61.7

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 33
SUBSTRATE TREATMENT= PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HYDROMULCH (1.7 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	15	30	15.0
SUBTOTAL				15.0
FORB - INVADED				
MACHAERANTHERA PATTERSONII	0	1	0	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	12	10	10	10.7
AGROPYRON TRICHOPHORUM	2	0	5	2.3
BROMUS INERMIS	0	0	3	1.0
ORYZOPSIS HYMENOIDES	0	1	0	0.3
SUBTOTAL				14.3
GRASS - INVADED				
BROMUS TECTORUM	15	10	0	8.3
SUBTOTAL				8.3
SHRUB - PLANTED				
CERATOIDES LANATA	0	0	8	2.7
CHRYSOTHAMNUS NAUSEOSUS	0	25	20	15.0
SUBTOTAL				17.7
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	5	0	0	1.7
SUBTOTAL				1.7
TOTAL PLANTED SPECIES				47.0
TOTAL INVADED SPECIES				10.3
GRAND TOTAL				57.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 34
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= NO MULCH

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	5	20	8.3
SUBTOTAL				8.3
GRASS - PLANTED				
AGROPYRON SPECIES	0	5	10	5.0
AGROPYRON TRICHOPHORUM	0	8	0	2.7
BROMUS INERMIS	4	0	0	1.3
ORYZOPSIS HYMENOIDES	3	0	4	2.3
STIPA VIRIDULA	5	0	0	1.7
SUBTOTAL				13.0
GRASS - INVADED				
BROMUS TECTORUM	15	5	10	10.0
SUBTOTAL				10.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	0	5	15	6.7
CERATOIDES LANATA	0	2	0	0.7
CHRYSOTHAMNUS NAUSEOSUS	0	4	0	1.3
PURSHIA TRIDENTATA	4	0	0	1.3
SUBTOTAL				10.0
SHRUB - INVADED				
GUTIERREZIA SAROTHRAE	2	0	0	0.7
SUBTOTAL				0.7
TOTAL PLANTED SPECIES				31.3
TOTAL INVADED SPECIES				10.7
GRAND TOTAL				42.0

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 35
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	18	0	6.0
SUBTOTAL				6.0
FORB - INVADED				
SENECIO MULTILOBATUS	1	0	0	0.3
SUBTOTAL				0.3
GRASS - PLANTED				
AGROPYRON SPECIES	5	5	5	5.0
AGROPYRON TRICHOPHORUM	0	10	10	6.7
BROMUS INERMIS	2	3	10	5.0
SUBTOTAL				16.7
GRASS - INVADED				
AGROPYRON CRISTATUM	15	20	8	14.3
BROMUS TECTORUM	2	5	10	5.7
SUBTOTAL				20.0
SHRUB - PLANTED				
ATRIPLEX CANESCENS	10	12	20	14.0
CHRYSOTHAMNUS NAUSEOSUS	10	0	3	4.3
PURSHIA TRIDENTATA	0	2	1	1.0
SUBTOTAL				19.3
TOTAL PLANTED SPECIES				42.0
TOTAL INVADED SPECIES				20.3
GRAND TOTAL				62.3

APPENDIX . PERCENT COVER OF PLANT SPECIES SAMPLED ON EXPERIMENTAL REVEGETATION PLOT R-3
REPORT YEAR= 1983

SAMPLE PLOT NUMBER= 36
SUBSTRATE TREATMENT= NO PROCESSED SHALE
SEEDING TREATMENT= LOW SEEDING RATE (17 KG/HA)
MULCHING TREATMENT= HAY (4.5 MT/HA)

SPECIES	SUBPLOTS #4	#5	#6	TREATMENT PLOT AVERAGE
FORB - PLANTED				
ASTRAGALUS CICER	0	4	10	4.7
SUBTOTAL				4.7
FORB - INVADED				
HAPLOPAPPUS NUTTALLII	0	0	5	1.7
SUBTOTAL				1.7
GRASS - PLANTED				
AGROPYRON SPECIES	15	15	15	15.0
AGROPYRON TRICHOPHORUM	10	10	15	11.7
STIPA VIRIDULA	3	2	0	1.7
SUBTOTAL				28.3
GRASS - INVADED				
AGROPYRON CRISTATUM	3	8	0	3.7
BROMUS TECTORUM	15	10	15	13.3
SUBTOTAL				17.0
SHRUB - PLANTED				
ARTEMISIA TRIDENTATA	0	4	6	3.3
ATRIPLEX CANESCENS	18	25	0	14.3
CERATOIDES LANATA	0	2	12	4.7
PURSHIA TRIDENTATA	3	0	0	1.0
SUBTOTAL				23.3
TOTAL PLANTED SPECIES				56.3
TOTAL INVADED SPECIES				18.7
GRAND TOTAL				75.0

Soil Moisture Data

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R3 SOIL MOISTURE ANALYSIS

REPORT YEAR= 1983 SAMPLE MONTH= MAY

PLOT	SUBSTRATE TREATMENT	SEEDING TREATMENT	MULCHING TREATMENT	MOISTURE READINGS TOP DIR	TOP COR	MIDDLE DIR	MIDDLE COR	BOTTOM DIR	BOTTOM COR
1	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	34.1	25.3	33.6	33.6	32.3	18.4
2	PROCESSED SHALE	HIGH SEEDING	NO MULCH	32.9	25.3	30.2	30.2	31.9	19.1
3	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	33.4	25.7	30.9	30.9	29.6	21.0
4	NO SHALE	HIGH SEEDING	NO MULCH	35.2	25.6	32.8	32.8	30.6	15.8
5	NO SHALE	HIGH SEEDING	HYDROMULCH	34.6	28.0	34.9	34.9	32.3	16.8
6	NO SHALE	HIGH SEEDING	HAY MULCH	32.7	25.5	36.4	36.4	28.5	18.7
7	PROCESSED SHALE	HIGH SEEDING	NO MULCH	34.5	25.9	31.4	31.4	29.1	17.6
8	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	34.9	25.8	30.5	30.5	29.6	20.5
9	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	34.1	25.8	31.9	31.9	19.8	10.0
10	NO SHALE	HIGH SEEDING	HAY MULCH	31.6	23.8	30.4	30.4	27.1	14.2
11	NO SHALE	HIGH SEEDING	HYDROMULCH	35.8	26.7	34.2	34.2	23.4	11.2
12	NO SHALE	HIGH SEEDING	NO MULCH	34.7	27.7	36.9	36.9	33.8	22.9
13	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	34.7	25.8	31.3	31.3	32.1	24.6
14	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	33.5	25.1	30.7	30.7	28.7	20.4
15	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	34.2	25.6	29.6	29.6	18.5	10.4
16	NO SHALE	MEDIUM SEEDING	HAY MULCH	32.4	23.8	33.2	33.2	21.5	11.4
17	NO SHALE	MEDIUM SEEDING	NO MULCH	31.3	23.8	33.0	33.0	31.2	18.1
18	NO SHALE	MEDIUM SEEDING	HAY MULCH	33.1	23.6	33.9	33.9	19.0	11.3
19	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	36.5	26.4	33.6	33.6	29.1	21.3
20	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	34.2	26.2	31.1	31.1	18.9	12.6
21	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	32.6	24.8	33.1	33.1	26.5	17.4
22	NO SHALE	MEDIUM SEEDING	HYDROMULCH	32.9	24.4	32.2	32.2	31.2	21.7
23	NO SHALE	MEDIUM SEEDING	HYDROMULCH	33.2	25.2	31.2	31.2	17.5	7.7
24	NO SHALE	MEDIUM SEEDING	NO MULCH	33.4	24.3	31.7	31.7	24.7	17.7
25	PROCESSED SHALE	LOW SEEDING	HAY MULCH	34.3	26.2	29.5	29.5	17.0	9.9
26	PROCESSED SHALE	LOW SEEDING	HAY MULCH	35.1	27.6	33.6	33.6	17.8	9.7
27	PROCESSED SHALE	LOW SEEDING	NO MULCH	35.9	28.5	32.5	32.5	16.8	7.4
28	NO SHALE	LOW SEEDING	HYDROMULCH	33.4	25.4	30.4	30.4	26.9	17.4
29	NO SHALE	LOW SEEDING	HYDROMULCH	33.9	26.0	31.3	31.3	18.6	8.6
30	NO SHALE	LOW SEEDING	NO MULCH	32.4	22.9	31.1	31.1	26.2	12.7
31	PROCESSED SHALE	LOW SEEDING	NO MULCH	35.2	25.4	30.3	30.3	16.2	8.1
32	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	34.6	27.1	32.2	32.2	19.7	11.0
33	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	33.1	24.5	31.8	31.8	20.9	11.7
34	NO SHALE	LOW SEEDING	NO MULCH	33.4	24.0	32.7	32.7	18.1	7.3
35	NO SHALE	LOW SEEDING	HAY MULCH	35.8	27.6	30.0	30.0	18.1	8.4
36	NO SHALE	LOW SEEDING	HAY MULCH	34.3	27.1	31.7	31.7	17.0	6.9

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R3 SOIL MOISTURE ANALYSIS

REPORT YEAR= 1983 SAMPLE MONTH= JUNE

PLOT	SUBSTRATE TREATMENT	SEEDING TREATMENT	MULCHING TREATMENT	MOISTURE READINGS TOP DIR	TOP COR	MIDDLE DIR	MIDDLE COR	BOTTOM DIR	BOTTOM COR
1	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	32.3	23.5	32.6	32.6	36.1	22.2
2	PROCESSED SHALE	HIGH SEEDING	NO MULCH	28.7	21.1	32.2	32.2	35.1	22.3
3	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	30.3	22.6	31.1	31.1	32.3	23.7
4	NO SHALE	HIGH SEEDING	NO MULCH	30.2	20.6	35.9	35.9	35.1	20.3
5	NO SHALE	HIGH SEEDING	HYDROMULCH	30.3	23.7	33.7	33.7	35.4	19.9
6	NO SHALE	HIGH SEEDING	HAY MULCH	29.9	22.7	36.3	36.3	33.0	23.2
7	PROCESSED SHALE	HIGH SEEDING	NO MULCH	31.2	22.6	31.3	31.3	32.3	20.8
8	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	30.9	21.8	30.2	30.2	31.8	22.7
9	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	28.8	20.5	31.1	31.1	30.3	20.5
10	NO SHALE	HIGH SEEDING	HAY MULCH	29.0	21.2	31.6	31.6	33.2	20.3
11	NO SHALE	HIGH SEEDING	HYDROMULCH	31.0	21.9	34.5	34.5	23.5	11.3
12	NO SHALE	HIGH SEEDING	NO MULCH	30.7	23.7	36.7	36.7	35.0	24.1
13	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	31.3	22.4	30.7	30.7	31.7	24.2
14	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	30.7	22.3	30.1	30.1	30.2	21.9
15	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	27.7	19.1	28.5	28.5	30.6	22.5
16	NO SHALE	MEDIUM SEEDING	HAY MULCH	29.5	20.9	32.0	32.0	29.2	19.1
17	NO SHALE	MEDIUM SEEDING	NO MULCH	29.3	21.8	32.4	32.4	33.8	20.7
18	NO SHALE	MEDIUM SEEDING	HAY MULCH	32.3	22.8	36.9	36.9	20.5	12.8
19	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	30.6	20.5	31.6	31.6	30.1	22.3
20	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	28.0	20.0	29.4	29.4	27.5	21.2
21	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	27.3	19.5	30.7	30.7	24.6	15.5
22	NO SHALE	MEDIUM SEEDING	HYDROMULCH	31.3	22.8	31.5	31.5	26.5	17.0
23	NO SHALE	MEDIUM SEEDING	HYDROMULCH	29.7	21.7	30.6	30.6	27.0	17.2
24	NO SHALE	MEDIUM SEEDING	NO MULCH	31.6	22.5	34.3	34.3	26.3	19.3
25	PROCESSED SHALE	LOW SEEDING	HAY MULCH	28.5	20.4	30.3	30.3	24.2	17.1
26	PROCESSED SHALE	LOW SEEDING	HAY MULCH	30.1	22.6	33.1	33.1	26.3	18.2
27	PROCESSED SHALE	LOW SEEDING	NO MULCH	28.8	21.4	30.9	30.9	19.0	9.6
28	NO SHALE	LOW SEEDING	HYDROMULCH	27.9	19.9	31.7	31.7	26.0	16.5
29	NO SHALE	LOW SEEDING	HYDROMULCH	29.4	21.5	30.9	30.9	27.4	17.4
30	NO SHALE	LOW SEEDING	NO MULCH	26.9	17.4	29.4	29.4	31.1	17.6
31	PROCESSED SHALE	LOW SEEDING	NO MULCH	27.8	18.0	30.9	30.9	16.8	8.7
32	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	27.4	19.9	33.1	33.1	21.0	12.3
33	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	25.3	16.7	32.3	32.3	24.8	15.6
34	NO SHALE	LOW SEEDING	NO MULCH	28.8	19.4	32.2	32.2	29.3	18.5
35	NO SHALE	LOW SEEDING	HAY MULCH	30.3	22.1	30.7	30.7	26.5	16.8
36	NO SHALE	LOW SEEDING	HAY MULCH	29.6	22.4	31.6	31.6	26.9	16.8

RID BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R3 SOIL MOISTURE ANALYSIS

REPORT YEAR= 1983 SAMPLE MONTH= JULY

PLOT	SUBSTRATE TREATMENT	SEEDING TREATMENT	MULCHING TREATMENT	MOISTURE READINGS TOP DIR	TOP COR	MIDDLE DIR	MIDDLE COR	BOTTOM DIR	BOTTOM COR
1	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	19.3	10.5	25.6	25.6	36.5	22.6
2	PROCESSED SHALE	HIGH SEEDING	NO MULCH	21.3	13.7	25.5	25.5	30.2	17.4
3	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	24.2	16.5	26.0	26.0	25.5	16.9
4	NO SHALE	HIGH SEEDING	NO MULCH	25.5	15.9	30.6	30.6	32.8	18.0
5	NO SHALE	HIGH SEEDING	HYDROMULCH	23.9	17.3	30.7	30.7	31.7	16.2
6	NO SHALE	HIGH SEEDING	HAY MULCH	21.7	14.5	31.4	31.4	31.2	21.4
7	PROCESSED SHALE	HIGH SEEDING	NO MULCH	24.6	16.0	27.3	27.3	35.0	23.5
8	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	23.6	14.5	26.4	26.4	28.1	19.0
9	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	24.7	16.4	26.7	26.7	31.0	21.2
10	NO SHALE	HIGH SEEDING	HAY MULCH	24.8	17.0	29.3	29.3	30.6	17.7
11	NO SHALE	HIGH SEEDING	HYDROMULCH	26.1	17.0	32.3	32.3	23.2	11.0
12	NO SHALE	HIGH SEEDING	NO MULCH	24.1	17.1	30.0	30.0	29.9	19.0
13	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	22.7	13.8	23.3	23.3	25.8	18.3
14	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	22.0	13.6	25.6	25.6	26.1	17.8
15	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	21.4	12.8	24.2	24.2	31.0	22.9
16	NO SHALE	MEDIUM SEEDING	HAY MULCH	24.5	15.9	29.2	29.2	28.2	18.1
17	NO SHALE	MEDIUM SEEDING	NO MULCH	21.4	13.9	30.0	30.0	31.4	18.3
18	NO SHALE	MEDIUM SEEDING	HAY MULCH	25.9	16.4	31.4	31.4	21.3	13.6
19	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	19.8	9.7	27.2	27.2	26.9	19.1
20	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	21.5	13.5	25.5	25.5	26.8	20.5
21	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	18.6	10.8	27.9	27.9	23.7	14.6
22	NO SHALE	MEDIUM SEEDING	HYDROMULCH	19.5	11.0	29.0	29.0	26.1	16.6
23	NO SHALE	MEDIUM SEEDING	HYDROMULCH	22.5	14.5	29.4	29.4	26.5	16.7
24	NO SHALE	MEDIUM SEEDING	NO MULCH	24.8	15.7	29.7	29.7	22.8	15.8
25	PROCESSED SHALE	LOW SEEDING	HAY MULCH	18.4	10.3	24.0	24.0	23.0	15.9
26	PROCESSED SHALE	LOW SEEDING	HAY MULCH	22.7	15.2	28.6	28.6	25.5	17.4
27	PROCESSED SHALE	LOW SEEDING	NO MULCH	19.2	11.8	27.1	27.1	21.7	12.3
28	NO SHALE	LOW SEEDING	HYDROMULCH	21.3	13.3	27.3	27.3	26.1	16.6
29	NO SHALE	LOW SEEDING	HYDROMULCH	19.6	11.7	28.4	28.4	25.7	15.7
30	NO SHALE	LOW SEEDING	NO MULCH	21.0	11.5	27.9	27.9	30.0	16.5
31	PROCESSED SHALE	LOW SEEDING	NO MULCH	18.9	9.1	27.2	27.2	21.5	13.4
32	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	17.3	9.8	27.1	27.1	23.7	15.0
33	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	18.5	9.9	27.6	27.6	24.3	15.1
34	NO SHALE	LOW SEEDING	NO MULCH	21.8	12.4	30.0	30.0	26.5	15.7
35	NO SHALE	LOW SEEDING	HAY MULCH	22.7	14.5	28.4	28.4	25.9	16.2
36	NO SHALE	LOW SEEDING	HAY MULCH	19.2	12.0	29.6	29.6	25.8	15.7

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R3 SOIL MOISTURE ANALYSIS

REPORT YEAR= 1983 SAMPLE MONTH= AUGUST

PLOT	SUBSTRATE TREATMENT	SEEDING TREATMENT	MULCHING TREATMENT	MOISTURE READINGS TOP DIR	TOP COR	MIDDLE DIR	MIDDLE COR	BOTTOM DIR	BOTTOM COR
1	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	16.3	7.5	20.3	20.3	33.5	19.6
2	PROCESSED SHALE	HIGH SEEDING	NO MULCH	17.2	9.6	19.7	19.7	23.0	10.2
3	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	17.6	9.9	21.3	21.3	21.1	12.5
4	NO SHALE	HIGH SEEDING	NO MULCH	20.3	10.7	27.8	27.8	28.4	13.6
5	NO SHALE	HIGH SEEDING	HYDROMULCH	17.9	11.3	27.8	27.8	28.4	12.9
6	NO SHALE	HIGH SEEDING	HAY MULCH	16.9	9.7	27.2	27.2	27.4	17.6
7	PROCESSED SHALE	HIGH SEEDING	NO MULCH	18.2	9.6	23.9	23.9	32.4	20.9
8	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	18.1	9.0	20.3	20.3	24.5	15.4
9	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	18.4	10.1	24.0	24.0	30.6	20.8
10	NO SHALE	HIGH SEEDING	HAY MULCH	18.4	10.6	25.9	25.9	29.0	16.1
11	NO SHALE	HIGH SEEDING	HYDROMULCH	19.4	10.3	27.0	27.0	23.6	11.4
12	NO SHALE	HIGH SEEDING	NO MULCH	15.2	8.2	24.1	24.1	25.6	14.7
13	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	15.6	6.7	19.0	19.0	20.0	12.5
14	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	15.4	7.0	20.1	20.1	21.7	13.4
15	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	17.0	8.4	21.1	21.1	27.9	19.8
16	NO SHALE	MEDIUM SEEDING	HAY MULCH	19.3	10.7	26.0	26.0	25.5	15.4
17	NO SHALE	MEDIUM SEEDING	NO MULCH	16.9	9.4	27.0	27.0	29.0	15.9
18	NO SHALE	MEDIUM SEEDING	HAY MULCH	19.1	9.6	25.6	25.6	19.7	12.0
19	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	15.9	5.8	23.1	23.1	23.0	15.2
20	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	16.7	8.7	20.7	20.7	22.7	16.4
21	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	16.1	8.3	22.3	22.3	23.1	14.0
22	NO SHALE	MEDIUM SEEDING	HYDROMULCH	14.5	6.0	26.2	26.2	24.3	14.8
23	NO SHALE	MEDIUM SEEDING	HYDROMULCH	16.2	8.2	25.9	25.9	24.7	14.9
24	NO SHALE	MEDIUM SEEDING	NO MULCH	19.3	10.2	27.4	27.4	22.6	15.6
25	PROCESSED SHALE	LOW SEEDING	HAY MULCH	15.7	7.6	18.5	18.5	21.0	13.9
26	PROCESSED SHALE	LOW SEEDING	HAY MULCH	17.8	10.3	23.6	23.6	22.2	14.1
27	PROCESSED SHALE	LOW SEEDING	NO MULCH	16.5	9.1	23.5	23.5	21.5	12.1
28	NO SHALE	LOW SEEDING	HYDROMULCH	15.9	7.9	26.4	26.4	24.1	14.6
29	NO SHALE	LOW SEEDING	HYDROMULCH	16.8	8.9	25.1	25.1	23.9	13.9
30	NO SHALE	LOW SEEDING	NO MULCH	16.3	6.8	24.6	24.6	27.3	13.8
31	PROCESSED SHALE	LOW SEEDING	NO MULCH	15.7	5.9	23.0	23.0	19.9	11.8
32	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	14.0	6.5	23.4	23.4	21.8	13.1
33	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	14.2	5.6	23.3	23.3	22.7	13.5
34	NO SHALE	LOW SEEDING	NO MULCH	17.9	8.5	26.9	26.9	24.2	13.4
35	NO SHALE	LOW SEEDING	HAY MULCH	17.0	8.8	25.8	25.8	24.7	15.0
36	NO SHALE	LOW SEEDING	HAY MULCH	15.3	8.1	24.3	24.3	25.1	15.0

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R3 SOIL MOISTURE ANALYSIS

REPORT YEAR= 1983 SAMPLE MONTH= SEPTEMBER

PLOT	SUBSTRATE TREATMENT	SEEDING TREATMENT	MULCHING TREATMENT	MOISTURE READINGS TOP DIR	TOP COR	MIDDLE DIR	MIDDLE COR	BOTTOM DIR	BOTTOM COR
1	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	14.8	6.0	16.3	16.3	29.9	16.0
2	PROCESSED SHALE	HIGH SEEDING	NO MULCH	13.7	6.1	16.0	16.0	21.8	9.0
3	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	16.0	8.3	15.7	15.7	17.9	9.3
4	NO SHALE	HIGH SEEDING	NO MULCH	17.2	7.6	25.1	25.1	24.7	9.9
5	NO SHALE	HIGH SEEDING	HYDROMULCH	15.1	8.5	26.1	26.1	26.2	10.7
6	NO SHALE	HIGH SEEDING	HAY MULCH	14.8	7.6	23.0	23.0	24.3	14.5
7	PROCESSED SHALE	HIGH SEEDING	NO MULCH	16.4	7.8	19.0	19.0	25.7	14.2
8	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	15.8	6.7	15.2	15.2	21.2	12.1
9	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	16.0	7.7	17.2	17.2	25.4	15.6
10	NO SHALE	HIGH SEEDING	HAY MULCH	15.8	8.0	21.8	21.8	24.3	11.4
11	NO SHALE	HIGH SEEDING	HYDROMULCH	17.9	8.8	24.5	24.5	24.1	11.9
11	NO SHALE	HIGH SEEDING	HYDROMULCH	15.6	6.5	17.9	17.9	19.9	7.7
12	NO SHALE	HIGH SEEDING	NO MULCH	14.8	7.8	19.8	19.8	24.1	13.2
13	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	15.7	6.8	16.7	16.7	17.8	10.3
14	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	14.6	6.2	16.2	16.2	16.5	8.2
15	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	14.8	6.2	16.1	16.1	23.4	15.3
16	NO SHALE	MEDIUM SEEDING	HAY MULCH	16.9	8.3	21.4	21.4	23.3	13.2
17	NO SHALE	MEDIUM SEEDING	NO MULCH	15.3	7.8	22.4	22.4	26.9	13.8
18	NO SHALE	MEDIUM SEEDING	HAY MULCH	16.7	7.2	21.6	21.6	19.5	11.8
19	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	16.4	6.3	18.6	18.6	17.9	10.1
20	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	15.2	7.2	17.4	17.4	20.5	14.2
22	NO SHALE	MEDIUM SEEDING	HYDROMULCH	15.4	6.9	21.8	21.8	21.5	12.0
23	NO SHALE	MEDIUM SEEDING	HYDROMULCH	15.9	7.9	22.7	22.7	23.6	13.8
24	NO SHALE	MEDIUM SEEDING	NO MULCH	16.5	7.4	22.0	22.0	20.5	13.5
25	PROCESSED SHALE	LOW SEEDING	HAY MULCH	14.9	6.8	15.9	15.9	17.4	10.3
26	PROCESSED SHALE	LOW SEEDING	HAY MULCH	15.2	7.7	21.4	21.4	19.2	11.1
27	PROCESSED SHALE	LOW SEEDING	NO MULCH	14.9	7.5	18.7	18.7	18.3	8.9
28	NO SHALE	LOW SEEDING	HYDROMULCH	15.1	7.1	21.6	21.6	21.6	12.1
29	NO SHALE	LOW SEEDING	HYDROMULCH	16.7	8.8	22.3	22.3	21.9	11.9
30	NO SHALE	LOW SEEDING	NO MULCH	17.7	8.2	19.8	19.8	25.0	11.5
31	PROCESSED SHALE	LOW SEEDING	NO MULCH	16.5	6.7	21.2	21.2	18.3	10.2
32	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	15.4	7.9	19.5	19.5	18.9	10.2
33	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	15.3	6.7	19.8	19.8	19.3	10.1
34	NO SHALE	LOW SEEDING	NO MULCH	15.5	6.1	23.4	23.4	22.8	12.0
35	NO SHALE	LOW SEEDING	HAY MULCH	16.0	7.8	22.6	22.6	22.4	12.7
36	NO SHALE	LOW SEEDING	HAY MULCH	13.9	6.7	19.5	19.5	22.6	12.5

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R3 SOIL MOISTURE ANALYSIS

REPORT YEAR= 1983 SAMPLE MONTH= OCTOBER

PLOT	SUBSTRATE TREATMENT	SEEDING TREATMENT	MULCHING TREATMENT	MOISTURE READINGS TOP DIR	TOP COR	MIDDLE DIR	MIDDLE COR	BOTTOM DIR	BOTTOM COR
1	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	17.4	8.6	18.2	18.2	29.2	15.3
2	PROCESSED SHALE	HIGH SEEDING	NO MULCH	16.3	8.7	16.1	16.1	21.7	8.9
3	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	19.2	11.5	14.4	14.4	17.3	8.7
4	NO SHALE	HIGH SEEDING	NO MULCH	20.8	11.2	23.7	23.7	25.0	10.2
5	NO SHALE	HIGH SEEDING	HYDROMULCH	16.0	9.4	25.2	25.2	23.8	8.3
6	NO SHALE	HIGH SEEDING	HAY MULCH	20.9	13.7	22.0	22.0	24.2	14.4
7	PROCESSED SHALE	HIGH SEEDING	NO MULCH	20.0	11.4	17.4	17.4	26.8	15.3
8	PROCESSED SHALE	HIGH SEEDING	HYDROMULCH	16.4	7.3	15.8	15.8	20.4	11.3
9	PROCESSED SHALE	HIGH SEEDING	HAY MULCH	19.4	11.1	16.9	16.9	24.2	14.4
10	NO SHALE	HIGH SEEDING	HAY MULCH	20.9	13.1	22.2	22.2	24.0	11.1
11	NO SHALE	HIGH SEEDING	HYDROMULCH	21.5	12.4	24.3	24.3	23.8	11.6
12	NO SHALE	HIGH SEEDING	NO MULCH	17.7	10.7	20.7	20.7	23.7	12.8
13	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	19.7	10.8	16.6	16.6	18.0	10.5
14	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	17.1	8.7	15.6	15.6	17.4	9.1
15	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	17.7	9.1	18.0	18.0	24.1	16.0
16	NO SHALE	MEDIUM SEEDING	HAY MULCH	21.0	12.4	21.8	21.8	23.7	13.6
17	NO SHALE	MEDIUM SEEDING	NO MULCH	18.6	11.1	22.7	22.7	25.3	12.2
18	NO SHALE	MEDIUM SEEDING	HAY MULCH	18.9	9.4	21.2	21.2	19.5	11.8
19	PROCESSED SHALE	MEDIUM SEEDING	NO MULCH	20.2	10.1	17.7	17.7	18.5	10.7
20	PROCESSED SHALE	MEDIUM SEEDING	HYDROMULCH	18.5	10.5	16.1	16.1	19.8	13.5
21	PROCESSED SHALE	MEDIUM SEEDING	HAY MULCH	17.8	10.0	18.8	18.8	20.1	11.0
22	NO SHALE	MEDIUM SEEDING	HYDROMULCH	19.5	11.0	21.8	21.8	21.8	12.3
23	NO SHALE	MEDIUM SEEDING	HYDROMULCH	18.5	10.5	22.7	22.7	22.6	12.8
24	NO SHALE	MEDIUM SEEDING	NO MULCH	18.4	9.3	22.4	22.4	21.2	14.2
25	PROCESSED SHALE	LOW SEEDING	HAY MULCH	16.9	8.8	16.1	16.1	18.5	11.4
26	PROCESSED SHALE	LOW SEEDING	HAY MULCH	18.5	11.0	20.7	20.7	20.3	12.2
27	PROCESSED SHALE	LOW SEEDING	NO MULCH	18.2	10.8	19.8	19.8	18.6	9.2
28	NO SHALE	LOW SEEDING	HYDROMULCH	18.8	10.8	21.3	21.3	20.1	10.6
29	NO SHALE	LOW SEEDING	HYDROMULCH	18.9	11.0	22.4	22.4	22.2	12.2
30	NO SHALE	LOW SEEDING	NO MULCH	20.1	10.6	20.3	20.3	23.7	10.2
31	PROCESSED SHALE	LOW SEEDING	NO MULCH	20.1	10.3	19.8	19.8	18.5	10.4
32	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	18.1	10.6	18.2	18.2	18.1	9.4
33	PROCESSED SHALE	LOW SEEDING	HYDROMULCH	18.5	9.9	19.5	19.5	18.2	9.0
34	NO SHALE	LOW SEEDING	NO MULCH	18.6	9.2	23.3	23.3	23.9	13.1
35	NO SHALE	LOW SEEDING	HAY MULCH	19.6	11.4	22.3	22.3	21.1	11.4
36	NO SHALE	LOW SEEDING	HAY MULCH	19.3	12.1	19.7	19.7	21.9	11.8

APPENDIX 6-1.6

Analyses for Plot R-3 Experimental Revegetation Data

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-13. Mulch treatment designations are presented on Figure 6-3.

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R3 COVER

THREE-WAY ANALYSIS OF VARIANCE COMPARING
SUBSTRATE, SEEDING, AND MULCH TREATMENTS
FOR THE PLANTED SPECIES (SUBPLOTS 4, 5, AND 6)
REPORT YEAR=1983 SPECIES=BROMUS INERMIS

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=12 MSE=1.8E-04

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	MULCH
	A	0.032012	10	HAY MULCH
	A			
B	A	0.023004	10	NO MULCH
B				
B		0.014001	10	HYDROMULCH

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-14.

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R3 COVER

ONE-WAY ANALYSIS OF VARIANCE COMPARING
SAMPLING YEARS OVER ALL TREATMENTS
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=1137 MSE=.0021366
HARMONIC MEAN OF CELL SIZES=163.005

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.066843	156	1979
	A			
B	A	0.062595	152	1983
B				
B	C	0.053890	166	1980
	C			
D	C	0.048156	170	1981
D				
D	E	0.039178	161	1982
	E			
	E	0.036065	160	1978
	F	0.010840	179	1977

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R3 COVER

ONE-WAY ANALYSIS OF VARIANCE COMPARING
SAMPLING YEARS OVER ALL TREATMENTS
GROWTH FORM=GRASS PLANTED OR INVADED SPECIES=INVADED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=327 MSE=9.0E-04
HARMONIC MEAN OF CELL SIZES=37.8557

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.057948	63	1983
	B	0.031399	39	1980
	B			
C	B	0.020573	72	1982
C	B			
C	B	0.018629	58	1981
C				
C		0.010132	54	1979
C				
C		0.009376	16	1978
C				
C		0.006876	32	1977

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R3 COVER

ONE-WAY ANALYSIS OF VARIANCE COMPARING
SAMPLING YEARS OVER ALL TREATMENTS
GROWTH FORM=FORB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=609 MSE=.0013341
HARMONIC MEAN OF CELL SIZES=76.9373

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	RPTYR
	A	0.075006	51	1983
	B	0.037739	70	1981
	B			
	B	0.029976	80	1982
	B			
C	B	0.026988	56	1980
C				
C	D	0.017407	105	1978
C	D			
C	D	0.016160	164	1977
	D			
	D	0.012894	90	1979

RIO BLANCO OIL SHALE COMPANY
VEGETATION MONITORING PROGRAM
EXPERIMENTAL REVEGETATION STUDIES - R3 COVER

ONE-WAY ANALYSIS OF VARIANCE COMPARING
SAMPLING YEARS OVER ALL TREATMENTS
GROWTH FORM=SHRUB PLANTED OR INVADED SPECIES=PLANTED

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: COVER
NOTE: THIS TEST CONTROLS ERROR RATES AT DIFFERENT LEVELS
DEPENDING ON THE NUMBER OF MEANS BETWEEN EACH PAIR
BEING COMPARED. ITS OPERATING CHARACTERISTICS SOMEWHAT
RESEMBLE FISHER'S UNPROTECTED LSD TEST.
ALPHA=0.05 DF=772 MSE=.0013337
HARMONIC MEAN OF CELL SIZES=101.357

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	RPTYR
A	0.045299	128	1983
A			
A	0.041211	148	1979
A			
A	0.040920	120	1982
B	0.023541	67	1981
B			
B	0.021530	116	1978
B			
B	0.021276	66	1980
C	0.010201	134	1977

Duncan's Multiple Range Test results for significant main effect differences as identified for analyses summarized on Table 6-18.

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=MAY

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=9.3483

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	DEPTH
A	25.622	36	25CM
B	21.617	36	75CM
C	14.442	36	150CM

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=JUNE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=6.07955

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	DEPTH
A	21.539	36	75CM
A			
A	21.219	36	25CM
B	18.614	36	150CM

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=JULY

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=4.56368

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	DEPTH
A	17.494	36	75CM
A			
A	17.269	36	150CM
B	13.597	36	25CM

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=AUGUST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=3.92086

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SUBS
A	12.785	54	NO SHALE
B	11.730	54	PROCESSED SHALE

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=SEPTEMBER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=2.99015

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=53.8333

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SUBS
A	10.116	57	NO SHALE
B	8.857	51	PROCESSED SHALE

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=OCTOBER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=2.92221

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SUBS
A	11.274	54	NO SHALE
B	9.791	54	PROCESSED SHALE

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=AUGUST

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=3.92086

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	DEPTH
A	14.717	36	150CM
B	13.458	36	75CM
C	8.597	36	25CM

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=SEPTEMBER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=2.99015

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	DEPTH
A	11.811	36	150CM
B	9.431	36	75CM
C	7.322	36	25CM

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=OCTOBER

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=2.92221

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	DEPTH
A	11.692	36	150CM
B	10.514	36	25CM
C	9.392	36	75CM

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=MAY

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=9.3483

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SLOPE
A	21.722	36	HIGH SLOPE
A			
A	20.969	36	MEDIUM SLOPE
B	18.989	36	LOW SLOPE

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=JUNE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=6.07955

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SLOPE
A	21.806	36	HIGH SLOPE
A			
A	20.706	36	MEDIUM SLOPE
B	18.861	36	LOW SLOPE

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - R-3 SOIL MOISTURE ANALYSIS
ANALYSIS OF VARIANCE COMPARING MOISTURE BETWEEN DEPTH PROFILES
AND INDEPENDENT TREATMENTS (SUBSTRATE AND SLOPE) BY MONTH
SAMPLE MONTH=JULY

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MOISTURE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=102 MSE=4.56368

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	SLOPE
A	17.297	36	HIGH SLOPE
B	16.194	36	MEDIUM SLOPE
C	14.869	36	LOW SLOPE

APPENDIX 6-3

Shrub Growth Enhancement Studies

APPENDIX 6-3.1

Shrub Growth Enhancement Studies Data

Survival/Growth Data for September 1983

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
A	1	1	2	2	RHUS TRILOBATA	ALIVE	33	18
A	2	1	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	3	1	2	2	ARTEMISIA ABROTANUM	ALIVE	24	31
A	4	1	2	2	ARTEMISIA ABROTANUM	ALIVE	18	24

FENCE
1=DEER EXCLUDED
2=DEER NOT EXCLUDED

SOIL
1=TOPSOIL COVERING
2=NO TOPSOIL COVERING

SLOPE
1=WATER BAR
2=NO WATER BAR
3=BENCH

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
A	5	1	2	2	RHUS TRILOBATA	ALIVE	18	8
A	6	1	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	7	1	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	8	1	2	2	ARTEMISIA ABROTANUM	ALIVE	52	68
A	9	1	2	2	RHUS TRILOBATA	ALIVE	46	36
A	10	1	2	2	RHUS TRILOBATA	ALIVE	51	30
A	11	1	2	2	AMELANCHIER ALNIFOLIA	ALIVE	14	16
A	12	1	2	2	ARTEMISIA ABROTANUM	ALIVE	26	40
A	13	1	2	2	ARTEMISIA ABROTANUM	ALIVE	27	36
A	14	1	2	2	RHUS TRILOBATA	ALIVE	28	7
A	15	1	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	16	1	2	2	AMELANCHIER ALNIFOLIA	ALIVE	10	9
A	17	1	2	2	ARTEMISIA ABROTANUM	ALIVE	27	40
A	18	1	2	2	RHUS TRILOBATA	DEAD	.	.
A	19	2	2	2	RHUS TRILOBATA	ALIVE	36	14
A	20	2	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	21	2	2	2	ARTEMISIA ABROTANUM	ALIVE	21	29
A	22	2	2	2	ARTEMISIA ABROTANUM	ALIVE	35	33
A	23	2	2	2	RHUS TRILOBATA	DEAD	.	.
A	24	2	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.

FENCE
1=DEER EXCLUDED
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SOIL
1=TOPSOIL COVERING
2=NO TOPSOIL COVERING

SLOPE
1=WATER BAR
2=NO WATER BAR
3=BENCH

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
A	25	2	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	26	2	2	2	ARTEMISIA ABROTANUM	ALIVE	19	33
A	27	2	2	2	RHUS TRILOBATA	DEAD	.	.
A	28	2	2	2	RHUS TRILOBATA	ALIVE	47	39
A	29	2	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	30	2	2	2	ARTEMISIA ABROTANUM	ALIVE	57	71
A	31	2	2	2	ARTEMISIA ABROTANUM	ALIVE	37	58
A	32	2	2	2	RHUS TRILOBATA	ALIVE	26	16
A	33	2	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	34	2	2	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
A	35	2	2	2	ARTEMISIA ABROTANUM	ALIVE	22	30
A	36	2	2	2	RHUS TRILOBATA	ALIVE	18	14
B	1	1	3	2	FALLUGIA PARADOXA	ALIVE	22	15
B	2	1	3	2	ATRIPLEX CANESCENS	ALIVE	78	58
B	3	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	5	6
B	4	1	3	2	RHUS TRILOBATA	ALIVE	21	11
B	5	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	53	16
B	6	1	3	2	ROBINEA NEOMEXICANA	ALIVE	43	21
B	7	1	3	2	ATRIPLEX CANESCENS	ALIVE	64	64
B	8	1	3	2	ROBINEA NEOMEXICANA	ALIVE	62	28

FENCE
1=DEER EXCLUDED
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SOIL
1=TOPSOIL COVERING
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SLOPE
1=WATER BAR
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3=BENCH

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
B	9	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	29	20
B	10	1	3	2	RHUS TRILOBATA	ALIVE	31	29
B	11	1	3	2	ARTEMISIA ABROTANUM	ALIVE	10	16
B	12	1	3	2	ATRIPLEX CANESCENS	ALIVE	49	46
B	13	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	13	9
B	14	1	3	2	ROBINEA NEOMEXICANA	ALIVE	50	33
B	15	1	3	2	FALLUGIA PARADOXA	ALIVE	31	28
B	16	1	3	2	ATRIPLEX CANESCENS	ALIVE	65	64
B	17	1	3	2	ARTEMISIA ABROTANUM	ALIVE	28	45
B	18	1	3	2	RHUS TRILOBATA	ALIVE	50	38
B	19	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	32	16
B	20	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	60	37
B	21	1	3	2	ROBINEA NEOMEXICANA	ALIVE	157	41
B	22	1	3	2	RHUS TRILOBATA	ALIVE	41	27
B	23	1	3	2	FALLUGIA PARADOXA	ALIVE	38	52
B	24	1	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
B	25	1	3	2	ATRIPLEX CANESCENS	ALIVE	63	79
B	26	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	25	10
B	27	1	3	2	ROBINEA NEOMEXICANA	ALIVE	74	32
B	28	1	3	2	ARTEMISIA ABROTANUM	DEAD	.	.

FENCE
1=DEER EXCLUDED
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SOIL
1=TOPSOIL COVERING
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SLOPE
1=WATER BAR
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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
B	29	1	3	2	ARTEMISIA ABROTANUM	ALIVE	29	39
B	30	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	63	35
B	31	1	3	2	ROBINEA NEOMEXICANA	ALIVE	63	39
B	32	1	3	2	ATRIPLEX CANESCENS	ALIVE	60	51
B	33	1	3	2	RHUS TRILOBATA	ALIVE	20	17
B	34	1	3	2	FALLUGIA PARADOXA	ALIVE	33	30
B	35	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	7	8
B	36	1	3	2	ROBINEA NEOMEXICANA	ALIVE	88	40
B	37	1	3	2	ARTEMISIA ABROTANUM	ALIVE	20	34
B	38	1	3	2	FALLUGIA PARADOXA	ALIVE	41	30
B	39	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	67	46
B	40	1	3	2	RHUS TRILOBATA	ALIVE	35	26
B	41	1	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
B	42	1	3	2	ATRIPLEX CANESCENS	ALIVE	74	50
B	43	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	47	18
B	44	2	3	2	ROBINEA NEOMEXICANA	ALIVE	55	35
B	45	2	3	2	ARTEMISIA ABROTANUM	ALIVE	21	28
B	46	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	10	14
B	47	2	3	2	FALLUGIA PARADOXA	DEAD	.	.
B	48	2	3	2	RHUS TRILOBATA	ALIVE	31	25

FENCE
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SOIL
1=TOPSOIL COVERING
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SLOPE
1=WATER BAR
2=NO WATER BAR
3=BENCH

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
B	49	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
B	50	2	3	2	RHUS TRILOBATA	ALIVE	22	17
B	51	2	3	2	FALLUGIA PARADOXA	ALIVE	25	25
B	52	2	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
B	53	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
B	54	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	32	25
B	55	2	3	2	ROBINEA NEOMEXICANA	ALIVE	47	36
B	56	2	3	2	ARTEMISIA ABROTANUM	ALIVE	10	18
B	57	2	3	2	RHUS TRILOBATA	ALIVE	22	21
B	58	2	3	2	ROBINEA NEOMEXICANA	ALIVE	39	31
B	59	2	3	2	FALLUGIA PARADOXA	ALIVE	41	44
B	60	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	22	9
B	61	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
B	62	2	3	2	ARTEMISIA ABROTANUM	ALIVE	20	33
B	63	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	76	37
B	64	2	3	2	FALLUGIA PARADOXA	ALIVE	19	21
B	65	2	3	2	ARTEMISIA ABROTANUM	ALIVE	24	33
B	66	2	3	2	ROBINEA NEOMEXICANA	ALIVE	92	74
B	67	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	72	33
B	68	2	3	2	ATRIPLEX CANESCENS	ALIVE	79	93

FENCE
1=DEER EXCLUDED
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SOIL
1=TOPSOIL COVERING
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SLOPE
1=WATER BAR
2=NO WATER BAR
3=BENCH

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
B	69	2	3	2	RHUS TRILOBATA	ALIVE	31	24
B	70	2	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
B	71	2	3	2	RHUS TRILOBATA	ALIVE	22	18
B	72	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	72	43
B	73	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
B	74	2	3	2	ROBINEA NEOMEXICANA	ALIVE	81	51
B	75	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	10	13
B	76	2	3	2	FALLUGIA PARADOXA	DEAD	.	.
B	77	2	3	2	ARTEMISIA ABROTANUM	ALIVE	27	26
B	78	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	51	31
B	79	2	3	2	ARTEMISIA ABROTANUM	DEAD	.	.
B	80	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
B	81	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	57	39
B	82	2	3	2	RHUS TRILOBATA	ALIVE	24	25
B	83	2	3	2	ROBINEA NEOMEXICANA	ALIVE	86	88
B	84	2	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
C	1	1	3	2	RHUS TRILOBATA	ALIVE	36	27
C	2	1	3	2	ATRIPLEX CANESCENS	ALIVE	70	52
C	3	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	56	37
C	4	1	3	2	FALLUGIA PARADOXA	ALIVE	38	42

FENCE
1=DEER EXCLUDED
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SOIL
1=TOPSOIL COVERING
2=NO TOPSOIL COVERING

SLOPE
1=WATER BAR
2=NO WATER BAR
3=BENCH

RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
C	5	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	3	1
C	6	1	3	2	ROBINEA NEOMEXICANA	ALIVE	11	10
C	7	1	3	2	ARTEMISIA ABROTANUM	ALIVE	21	30
C	8	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	48	11
C	9	1	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
C	10	1	3	2	ATRIPLEX CANESCENS	ALIVE	40	34
C	11	1	3	2	FALLUGIA PARADOXA	ALIVE	46	22
C	12	1	3	2	ARTEMISIA ABROTANUM	ALIVE	18	40
C	13	1	3	2	RHUS TRILOBATA	ALIVE	39	32
C	14	1	3	2	ROBINEA NEOMEXICANA	ALIVE	138	58
C	15	1	3	2	ATRIPLEX CANESCENS	ALIVE	97	143
C	16	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	34	36
C	17	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	21	20
C	18	1	3	2	RHUS TRILOBATA	ALIVE	32	25
C	19	1	3	2	ARTEMISIA ABROTANUM	ALIVE	24	38
C	20	1	3	2	ROBINEA NEOMEXICANA	ALIVE	71	59
C	21	1	3	2	FALLUGIA PARADOXA	ALIVE	29	27
C	22	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	85	37
C	23	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	11	17
C	24	1	3	2	ATRIPLEX CANESCENS	ALIVE	93	134

FENCE
1=DEER EXCLUDED
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SOIL
1=TOPSOIL COVERING
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SLOPE
1=WATER BAR
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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
C	25	1	3	2	RHUS TRILOBATA	ALIVE	24	13
C	26	1	3	2	FALLUGIA PARADOXA	ALIVE	48	57
C	27	1	3	2	ARTEMISIA ABROTANUM	ALIVE	30	41
C	28	1	3	2	ROBINEA NEOMEXICANA	ALIVE	112	31
C	29	1	3	2	ATRIPLEX CANESCENS	ALIVE	83	93
C	30	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	55	36
C	31	1	3	2	ARTEMISIA ABROTANUM	ALIVE	20	44
C	32	1	3	2	ROBINEA NEOMEXICANA	ALIVE	94	38
C	33	1	3	2	FALLUGIA PARADOXA	ALIVE	9	10
C	34	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	7	13
C	35	1	3	2	RHUS TRILOBATA	ALIVE	42	29
C	36	1	3	2	AMELANCHIER ALNIFOLIA	ALIVE	6	5
C	37	1	3	2	FORESTERIA NEOMEXICANA	ALIVE	67	39
C	38	1	3	2	ARTEMISIA ABROTANUM	ALIVE	21	32
C	39	1	3	2	ATRIPLEX CANESCENS	ALIVE	65	67
C	40	1	3	2	ROBINEA NEOMEXICANA	ALIVE	57	57
C	41	1	3	2	FALLUGIA PARADOXA	ALIVE	33	21
C	42	1	3	2	RHUS TRILOBATA	ALIVE	44	34
C	43	2	3	2	RHUS TRILOBATA	ALIVE	23	17
C	44	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	12	10

FENCE
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SLOPE
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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
SAMPLE MONTH = SEPTEMBER

ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
C	45	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	33	28
C	46	2	3	2	ARTEMISIA ABROTANUM	ALIVE	23	39
C	47	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
C	48	2	3	2	ROBINEA NEOMEXICANA	ALIVE	118	68
C	49	2	3	2	FALLUGIA PARADOXA	ALIVE	24	22
C	50	2	3	2	RHUS TRILOBATA	ALIVE	32	23
C	51	2	3	2	FALLUGIA PARADOXA	ALIVE	41	34
C	52	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
C	53	2	3	2	ROBINEA NEOMEXICANA	ALIVE	84	68
C	54	2	3	2	ARTEMISIA ABROTANUM	ALIVE	28	41
C	55	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	71	38
C	56	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	27	16
C	57	2	3	2	RHUS TRILOBATA	ALIVE	58	52
C	58	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	66	29
C	59	2	3	2	FALLUGIA PARADOXA	ALIVE	54	43
C	60	2	3	2	ROBINEA NEOMEXICANA	ALIVE	79	54
C	61	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	8	9
C	62	2	3	2	ARTEMISIA ABROTANUM	ALIVE	31	48
C	63	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
C	64	2	3	2	FALLUGIA PARADOXA	ALIVE	53	43

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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
C	65	2	3	2	ARTEMISIA ABROTANUM	ALIVE	23	38
C	66	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	53	29
C	67	2	3	2	RHUS TRILOBATA	ALIVE	45	36
C	68	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
C	69	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	25	17
C	70	2	3	2	ROBINEA NEOMEXICANA	ALIVE	97	84
C	71	2	3	2	ATRIPLEX CANESCENS	ALIVE	60	39
C	72	2	3	2	RHUS TRILOBATA	ALIVE	41	26
C	73	2	3	2	ROBINEA NEOMEXICANA	ALIVE	71	42
C	74	2	3	2	FALLUGIA PARADOXA	ALIVE	46	27
C	75	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	43	25
C	76	2	3	2	ARTEMISIA ABROTANUM	ALIVE	23	29
C	77	2	3	2	AMELANCHIER ALNIFOLIA	ALIVE	6	9
C	78	2	3	2	RHUS TRILOBATA	ALIVE	38	43
C	79	2	3	2	ROBINEA NEOMEXICANA	ALIVE	88	40
C	80	2	3	2	ARTEMISIA ABROTANUM	ALIVE	29	31
C	81	2	3	2	AMELANCHIER ALNIFOLIA	DEAD	.	.
C	82	2	3	2	FALLUGIA PARADOXA	DEAD	.	.
C	83	2	3	2	ATRIPLEX CANESCENS	DEAD	.	.
C	84	2	3	2	FORESTERIA NEOMEXICANA	ALIVE	42	18

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SHRUB GROWTH ENHANCEMENT STUDY
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REPORT YEAR = 1983
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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
D	1	1	2	1	RIBES CEREUM (SHORT)	ALIVE	36	10
D	2	1	2	1	RHUS TRILOBATA	ALIVE	20	12
D	3	1	2	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	19	4
D	4	1	2	1	AMELANCHIER ALNIFOLIA	ALIVE	5	6
D	5	1	2	1	ATRIPLEX CANESCENS	ALIVE	76	94
D	6	1	2	1	ARTEMISIA ABROTANUM	ALIVE	29	37
D	7	1	2	1	FORESTERIA NEOMEXICANA	ALIVE	60	35
D	8	1	2	1	FORESTERIA NEOMEXICANA	DEAD	.	.
D	9	1	2	1	RHUS TRILOBATA	ALIVE	22	21
D	10	1	2	1	AMELANCHIER ALNIFOLIA	ALIVE	10	11
D	11	1	2	1	ATRIPLEX CANESCENS	ALIVE	79	74
D	12	1	2	1	ARTEMISIA ABROTANUM	ALIVE	21	23
D	13	1	2	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	2	1
D	14	1	2	1	RIBES CEREUM (TALL)	ALIVE	22	5
D	15	1	2	1	RIBES CEREUM (TALL)	DEAD	.	.
D	16	1	2	1	ARTEMISIA ABROTANUM	ALIVE	32	29
D	17	1	2	1	FORESTERIA NEOMEXICANA	DEAD	.	.
D	18	1	2	1	RHUS TRILOBATA	ALIVE	12	9
D	19	1	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	20	1	2	1	ATRIPLEX CANESCENS	ALIVE	83	122

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SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
D	21	1	2	1	RIBES CEREUM (SHORT)	ALIVE	8	5
D	22	1	2	1	ATRIPLEX CANESCENS	ALIVE	78	91
D	23	1	2	1	ARTEMISIA ABROTANUM	ALIVE	21	23
D	24	1	2	1	FORESTERIA NEOMEXICANA	ALIVE	44	20
D	25	1	2	1	RHUS TRILOBATA	ALIVE	28	20
D	26	1	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	27	1	2	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	5	2
D	28	1	2	1	SHEPHERDIA ARGENTEA (TALL)	DEAD	.	.
D	29	1	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	30	1	2	1	ATRIPLEX CANESCENS	ALIVE	68	82
D	31	1	2	1	ARTEMISIA ABROTANUM	DEAD	.	.
D	32	1	2	1	FORESTERIA NEOMEXICANA	ALIVE	27	13
D	33	1	2	1	RHUS TRILOBATA	ALIVE	19	15
D	34	1	2	1	RIBES CEREUM (TALL)	ALIVE	22	3
D	35	1	2	1	RHUS TRILOBATA	ALIVE	16	17
D	36	1	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	37	1	2	1	ATRIPLEX CANESCENS	ALIVE	67	96
D	38	1	2	1	ARTEMISIA ABROTANUM	DEAD	.	.
D	39	1	2	1	FORESTERIA NEOMEXICANA	ALIVE	35	28
D	40	1	2	1	SHEPHERDIA ARGENTEA (SHORT)	DEAD	.	.

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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
D	41	1	2	1	SHEPHERDIA ARGENTEA (TALL)	DEAD	.	.
D	42	1	2	1	RIBES CEREUM (SHORT)	ALIVE	7	4
D	43	2	2	1	SHEPHERDIA ARGENTEA (SHORT)	DEAD	.	.
D	44	2	2	1	FORESTERIA NEOMEXICANA	ALIVE	12	4
D	45	2	2	1	RHUS TRILOBATA	ALIVE	8	4
D	46	2	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	47	2	2	1	ATRIPLEX CANESCENS	ALIVE	60	64
D	48	2	2	1	ARTEMISIA ABROTANUM	DEAD	.	.
D	49	2	2	1	RIBES CEREUM (TALL)	DEAD	.	.
D	50	2	2	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	2	2
D	51	2	2	1	ARTEMISIA ABROTANUM	ALIVE	24	26
D	52	2	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	53	2	2	1	ATRIPLEX CANESCENS	ALIVE	70	77
D	54	2	2	1	RHUS TRILOBATA	DEAD	.	.
D	55	2	2	1	FORESTERIA NEOMEXICANA	ALIVE	25	16
D	56	2	2	1	ATRIPLEX CANESCENS	DEAD	.	.
D	57	2	2	1	RIBES CEREUM (SHORT)	ALIVE	8	3
D	58	2	2	1	RIBES CEREUM (SHORT)	DEAD	.	.
D	59	2	2	1	ATRIPLEX CANESCENS	ALIVE	59	56
D	60	2	2	1	ARTEMISIA ABROTANUM	ALIVE	19	21

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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
D	61	2	2	1	RHUS TRILOBATA	ALIVE	3	3
D	62	2	2	1	FORESTERIA NEOMEXICANA	ALIVE	21	12
D	63	2	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	64	2	2	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	10	6
D	65	2	2	1	FORESTERIA NEOMEXICANA	ALIVE	42	18
D	66	2	2	1	ATRIPLEX CANESCENS	ALIVE	80	84
D	67	2	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	68	2	2	1	ARTEMISIA ABROTANUM	DEAD	.	.
D	69	2	2	1	RHUS TRILOBATA	ALIVE	28	15
D	70	2	2	1	RIBES CEREUM (TALL)	ALIVE	20	4
D	71	2	2	1	FORESTERIA NEOMEXICANA	ALIVE	30	8
D	72	2	2	1	RHUS TRILOBATA	ALIVE	17	10
D	73	2	2	1	ATRIPLEX CANESCENS	DEAD	.	.
D	74	2	2	1	ARTEMISIA ABROTANUM	ALIVE	21	30
D	75	2	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	76	2	2	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	5	2
D	77	2	2	1	FORESTERIA NEOMEXICANA	ALIVE	38	18
D	78	2	2	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
D	79	2	2	1	ARTEMISIA ABROTANUM	DEAD	.	.
D	80	2	2	1	ATRIPLEX CANESCENS	ALIVE	57	69

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RIO BLANCO OIL SHALE COMPANY
SHRUB GROWTH ENHANCEMENT STUDY
PLANT HEIGHT AND DIAMETER DATA

REPORT YEAR = 1983
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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
D	81	2	2	1	RHUS TRILOBATA	DEAD	.	.
D	82	2	2	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	8	2
D	83	2	2	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	5	2
D	84	2	2	1	RIBES CEREUM (TALL)	ALIVE	6	4
D	85	2	2	1	RIBES CEREUM (SHORT)	ALIVE	3	6
E	1	1	1	1	RIBES CEREUM (SHORT)	ALIVE	9	7
E	2	1	1	1	ATRIPLEX CANESCENS	ALIVE	92	106
E	3	1	1	1	ARTEMISIA ABROTANUM	ALIVE	31	41
E	4	1	1	1	RHUS TRILOBATA	ALIVE	43	51
E	5	1	1	1	FORESTERIA NEOMEXICANA	ALIVE	43	25
E	6	1	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	7	1	1	1	SHEPHERDIA ARGENTEA (SHORT)	DEAD	.	.
E	8	1	1	1	RHUS TRILOBATA	DEAD	.	.
E	9	1	1	1	ATRIPLEX CANESCENS	ALIVE	90	115
E	10	1	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	11	1	1	1	ARTEMISIA ABROTANUM	ALIVE	29	45
E	12	1	1	1	FORESTERIA NEOMEXICANA	ALIVE	70	25
E	13	1	1	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	24	8
E	14	1	1	1	RIBES CEREUM (TALL)	ALIVE	15	3
E	15	1	1	1	FORESTERIA NEOMEXICANA	ALIVE	62	51

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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
E	16	1	1	1	RHUS TRILOBATA	DEAD	.	.
E	17	1	1	1	ATRIPLEX CANESCENS	DEAD	.	.
E	18	1	1	1	ARTEMISIA ABROTANUM	ALIVE	41	54
E	19	1	1	1	AMELANCHIER ALNIFOLIA	ALIVE	6	13
E	20	1	1	1	RIBES CEREUM (SHORT)	ALIVE	47	12
E	21	1	1	1	FORESTERIA NEOMEXICANA	ALIVE	89	53
E	22	1	1	1	ARTEMISIA ABROTANUM	DEAD	.	.
E	23	1	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	24	1	1	1	RHUS TRILOBATA	ALIVE	33	23
E	25	1	1	1	ATRIPLEX CANESCENS	ALIVE	64	57
E	26	1	1	1	RIBES CEREUM (TALL)	ALIVE	26	5
E	27	1	1	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	4	5
E	28	1	1	1	RHUS TRILOBATA	DEAD	.	.
E	29	1	1	1	ARTEMISIA ABROTANUM	DEAD	.	.
E	30	1	1	1	ATRIPLEX CANESCENS	ALIVE	44	43
E	31	1	1	1	AMELANCHIER ALNIFOLIA	ALIVE	23	11
E	32	1	1	1	FORESTERIA NEOMEXICANA	DEAD	.	.
E	33	1	1	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	12	8
E	34	1	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	35	1	1	1	ATRIPLEX CANESCENS	DEAD	.	.

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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
E	36	1	1	1	ARTEMISIA ABROTANUM	ALIVE	38	53
E	37	1	1	1	FORESTERIA NEOMEXICANA	ALIVE	44	28
E	38	1	1	1	RHUS TRILOBATA	ALIVE	20	13
E	39	1	1	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	12	3
E	40	1	1	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	7	5
E	41	1	1	1	RIBES CEREUM (TALL)	ALIVE	23	7
E	42	1	1	1	RIBES CEREUM (SHORT)	ALIVE	21	11
E	43	2	1	1	RIBES CEREUM (TALL)	ALIVE	21	11
E	44	2	1	1	FORESTERIA NEOMEXICANA	ALIVE	51	22
E	45	2	1	1	RHUS TRILOBATA	ALIVE	33	23
E	46	2	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	47	2	1	1	ARTEMISIA ABROTANUM	ALIVE	28	53
E	48	2	1	1	ATRIPLEX CANESCENS	DEAD	.	.
E	49	2	1	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	4	2
E	50	2	1	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	12	3
E	51	2	1	1	ATRIPLEX CANESCENS	DEAD	.	.
E	52	2	1	1	ARTEMISIA ABROTANUM	ALIVE	26	51
E	53	2	1	1	FORESTERIA NEOMEXICANA	ALIVE	27	21
E	54	2	1	1	RHUS TRILOBATA	DEAD	.	.
E	55	2	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.

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ROW	PLANT NUM	FENCE	SLOPE	SOIL	SPECIES	STATUS	HEIGHT	DIAMETER
E	56	2	1	1	RIBES CEREUM (SHORT)	ALIVE	28	8
E	57	2	1	1	SHEPHERDIA ARGENTEA (TALL)	ALIVE	13	4
E	58	2	1	1	ATRIPLEX CANESCENS	DEAD	.	.
E	59	2	1	1	RHUS TRILOBATA	DEAD	.	.
E	60	2	1	1	ARTEMISIA ABROTANUM	ALIVE	35	38
E	61	2	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	62	2	1	1	RIBES CEREUM (TALL)	DEAD	.	.
E	63	2	1	1	FORESTERIA NEOMEXICANA	ALIVE	37	16
E	64	2	1	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	1	1
E	65	2	1	1	ATRIPLEX CANESCENS	ALIVE	57	58
E	66	2	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	67	2	1	1	ARTEMISIA ABROTANUM	DEAD	.	.
E	68	2	1	1	RHUS TRILOBATA	DEAD	.	.
E	69	2	1	1	FORESTERIA NEOMEXICANA	ALIVE	41	12
E	70	2	1	1	RIBES CEREUM (SHORT)	ALIVE	10	6
E	71	2	1	1	RHUS TRILOBATA	ALIVE	40	27
E	72	2	1	1	FORESTERIA NEOMEXICANA	ALIVE	30	13
E	73	2	1	1	ATRIPLEX CANESCENS	DEAD	.	.
E	74	2	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	75	2	1	1	ARTEMISIA ABROTANUM	ALIVE	3	8

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E	76	2	1	1	RIBES CEREUM (SHORT)	ALIVE	20	7
E	77	2	1	1	ATRIPLEX CANESCENS	ALIVE	61	65
E	78	2	1	1	ARTEMISIA ABROTANUM	ALIVE	32	36
E	79	2	1	1	FORESTERIA NEOMEXICANA	ALIVE	38	16
E	80	2	1	1	RHUS TRILOBATA	DEAD	.	.
E	81	2	1	1	AMELANCHIER ALNIFOLIA	DEAD	.	.
E	82	2	1	1	SHEPHERDIA ARGENTEA (SHORT)	ALIVE	1	2
E	83	2	1	1	RIBES CEREUM (TALL)	ALIVE	13	10
E	84	2	1	1	SHEPHERDIA ARGENTEA (TALL)	DEAD	.	.

Soil Moisture Data

Fence, soil and slope treatment designations
are presented on Survival/Growth Data Printouts

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENTS
SOIL MOISTURE NEUTRON PROBE DATA

REPORT YEAR= 1983 SAMPLE MONTH= MAY

ROW	HOLE NUMBER	FENCE TREATMENT	SOIL TREATMENT	SLOPE TREATMENT	25 CM MOISTURE READING	75 CM MOISTURE READING	150 CM MOISTURE READING
A	1	1	2	2	34.6	28.8	33.2
A	2	1	2	2	26.3	33.6	24.8
A	3	1	2	2	33.0	34.9	30.1
A	4	1	2	2	28.9	30.1	35.0
A	5	2	2	2	29.5	31.9	36.3
A	6	2	2	2	36.3	34.9	33.2
A	7	2	2	2	34.3	32.2	29.6
A	8	2	2	2	27.1	31.5	32.1
B	1	1	2	3	30.8	32.8	28.9
B	2	1	2	3	37.6	32.7	28.8
B	3	1	2	3	28.7	24.2	30.4
B	4	1	2	3	28.3	25.3	33.2
B	5	2	2	3	29.0	30.9	33.8
B	6	2	2	3	37.5	29.8	35.5
B	7	2	2	3	.	.	.
B	8	2	2	3	28.3	30.6	39.4
C	1	1	2	3	33.6	30.5	27.3
C	2	1	2	3	26.0	28.2	16.7
C	3	1	2	3	33.9	27.6	28.8
C	4	1	2	3	29.8	28.3	35.0
C	5	2	2	3	33.7	30.2	33.3
C	6	2	2	3	28.1	29.4	31.7
C	7	2	2	3	31.0	33.6	33.1
C	8	2	2	3	28.3	29.3	36.0
D	1	1	1	2	34.5	20.7	28.4
D	2	1	1	2	31.5	27.5	20.8
D	3	1	1	2	34.7	18.3	16.0
D	4	1	1	2	32.5	17.8	17.0
D	5	2	1	2	31.1	25.2	31.1
D	6	2	1	2	31.5	27.9	31.9
D	7	2	1	2	33.8	26.3	37.3
D	8	2	1	2	33.2	26.3	29.8
E	1	1	1	1	31.9	33.4	34.4
E	2	1	1	1	33.5	33.4	26.1
E	3	1	1	1	36.0	32.3	33.6
E	4	1	1	1	35.7	37.7	36.4
E	5	2	1	1	35.3	35.6	38.0
E	6	2	1	1	34.5	31.1	25.9
E	7	2	1	1	34.6	33.0	33.8
E	8	2	1	1	35.2	32.4	35.8

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENTS
SOIL MOISTURE NEUTRON PROBE DATA

REPORT YEAR= 1983 SAMPLE MONTH= JUNE

ROW	HOLE NUMBER	FENCE TREATMENT	SOIL TREATMENT	SLOPE TREATMENT	25 CM MOISTURE READING	75 CM MOISTURE READING	150 CM MOISTURE READING
A	1	1	2	2	31.6	29.4	32.7
A	2	1	2	2	25.5	34.0	25.9
A	3	1	2	2	29.7	33.8	31.8
A	4	1	2	2	28.3	28.9	31.7
A	5	2	2	2	27.4	31.3	37.5
A	6	2	2	2	34.3	32.1	32.3
A	7	2	2	2	32.9	32.6	27.9
A	8	2	2	2	26.1	30.6	32.1
B	1	1	2	3	29.3	31.6	27.6
B	2	1	2	3	35.2	32.8	29.0
B	3	1	2	3	25.7	24.5	23.6
B	4	1	2	3	27.1	26.5	29.0
B	5	2	2	3	29.0	29.7	33.6
B	6	2	2	3	35.9	28.4	32.4
B	7	2	2	3	.	.	.
B	8	2	2	3	27.6	28.4	37.6
C	1	1	2	3	30.9	28.5	26.6
C	2	1	2	3	25.8	26.9	20.9
C	3	1	2	3	31.8	26.6	29.0
C	4	1	2	3	28.0	27.6	34.1
C	5	2	2	3	31.8	30.7	33.1
C	6	2	2	3	27.3	28.5	29.6
C	7	2	2	3	29.4	33.2	32.4
C	8	2	2	3	28.6	28.6	29.0
D	1	1	1	2	31.8	22.9	33.0
D	2	1	1	2	27.9	29.5	14.0
D	3	1	1	2	29.3	19.3	12.7
D	4	1	1	2	29.4	19.3	19.9
D	5	2	1	2	30.5	25.8	32.5
D	6	2	1	2	28.8	29.4	31.1
D	7	2	1	2	30.8	25.6	34.6
D	8	2	1	2	28.4	24.8	32.8
E	1	1	1	1	31.0	33.5	33.2
E	2	1	1	1	33.6	31.4	24.7
E	3	1	1	1	36.1	32.1	34.5
E	4	1	1	1	32.0	35.1	35.0
E	5	2	1	1	32.9	35.8	37.1
E	6	2	1	1	29.0	29.8	27.8
E	7	2	1	1	30.1	32.1	30.6
E	8	2	1	1	32.7	33.2	34.5

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENTS
SOIL MOISTURE NEUTRON PROBE DATA

REPORT YEAR= 1983 SAMPLE MONTH= JULY

ROW	HOLE NUMBER	FENCE TREATMENT	SOIL TREATMENT	SLOPE TREATMENT	25 CM MOISTURE READING	75 CM MOISTURE READING	150 CM MOISTURE READING
A	1	1	2	2	31.1	31.4	33.0
A	2	1	2	2	24.9	34.6	27.1
A	3	1	2	2	31.0	33.8	33.1
A	4	1	2	2	25.5	29.8	33.0
A	5	2	2	2	27.1	31.5	36.4
A	6	2	2	2	32.7	33.0	32.4
A	7	2	2	2	30.6	32.4	28.5
A	8	2	2	2	21.8	30.5	30.4
B	1	1	2	3	29.2	31.5	28.6
B	2	1	2	3	16.2	16.4	13.9
B	3	1	2	3	26.0	25.6	26.9
B	4	1	2	3	26.1	26.1	30.0
B	5	2	2	3	27.7	31.8	34.2
B	6	2	2	3	37.2	29.6	34.8
B	7	2	2	3	.	.	.
B	8	2	2	3	27.6	28.4	34.7
C	1	1	2	3	32.2	29.1	27.2
C	2	1	2	3	25.4	27.2	21.1
C	3	1	2	3	27.1	27.2	31.0
C	4	1	2	3	27.2	26.8	34.0
C	5	2	2	3	29.6	30.4	33.8
C	6	2	2	3	27.3	29.1	30.1
C	7	2	2	3	29.5	32.0	33.1
C	8	2	2	3	28.5	29.0	29.3
D	1	1	1	2	24.8	22.1	34.5
D	2	1	1	2	22.8	29.6	13.3
D	3	1	1	2	14.5	19.6	12.8
D	4	1	1	2	25.7	18.9	18.5
D	5	2	1	2	25.9	23.6	31.2
D	6	2	1	2	27.3	27.7	33.3
D	7	2	1	2	28.9	23.5	35.9
D	8	2	1	2	18.9	21.1	31.1
E	1	1	1	1	26.2	32.9	32.7
E	2	1	1	1	32.2	31.0	23.5
E	3	1	1	1	33.5	31.9	35.1
E	4	1	1	1	30.3	33.7	35.8
E	5	2	1	1	30.4	35.5	36.9
E	6	2	1	1	26.9	30.4	27.0
E	7	2	1	1	26.2	32.0	31.9
E	8	2	1	1	29.5	32.3	37.4

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENTS
SOIL MOISTURE NEUTRON PROBE DATA

REPORT YEAR= 1983 SAMPLE MONTH= AUGUST

ROW	HOLE NUMBER	FENCE TREATMENT	SOIL TREATMENT	SLOPE TREATMENT	25 CM MOISTURE READING	75 CM MOISTURE READING	150 CM MOISTURE READING
A	1	1	2	2	28.2	28.5	31.9
A	2	1	2	2	22.3	33.9	27.9
A	3	1	2	2	24.1	32.8	32.0
A	4	1	2	2	20.8	30.2	32.9
A	5	2	2	2	27.6	30.1	37.8
A	6	2	2	2	31.0	33.0	32.2
A	7	2	2	2	26.4	32.2	29.3
A	8	2	2	2	22.0	30.7	30.4
B	1	1	2	3	29.5	32.3	28.5
B	2	1	2	3	29.5	30.0	27.4
B	3	1	2	3	23.6	25.2	26.9
B	4	1	2	3	24.6	26.6	29.2
B	5	2	2	3	27.5	31.6	32.9
B	6	2	2	3	37.5	28.2	34.4
B	7	2	2	3	.	.	.
B	8	2	2	3	29.1	29.7	32.3
C	1	1	2	3	32.8	29.8	26.8
C	2	1	2	3	25.9	27.6	20.4
C	3	1	2	3	25.0	.	.
C	4	1	2	3	27.5	27.6	34.4
C	5	2	2	3	27.4	30.2	34.2
C	6	2	2	3	28.3	30.1	30.5
C	7	2	2	3	28.2	33.2	33.5
C	8	2	2	3	27.9	28.0	29.1
D	1	1	1	2	19.7	23.2	33.8
D	2	1	1	2	20.9	27.1	13.5
D	3	1	1	2	20.1	15.6	13.3
D	4	1	1	2	23.6	19.0	19.4
D	5	2	1	2	23.0	22.3	30.7
D	6	2	1	2	25.9	26.2	30.7
D	7	2	1	2	25.2	23.7	35.8
D	8	2	1	2	15.3	19.3	31.1
E	1	1	1	1	23.4	32.1	34.1
E	2	1	1	1	30.8	30.6	24.5
E	3	1	1	1	30.2	31.9	34.2
E	4	1	1	1	31.9	34.2	34.2
E	5	2	1	1	26.6	36.0	37.7
E	6	2	1	1	22.6	28.5	25.9
E	7	2	1	1	22.4	31.5	32.2
E	8	2	1	1	28.3	33.6	34.9

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENTS
SOIL MOISTURE NEUTRON PROBE DATA

REPORT YEAR= 1983 SAMPLE MONTH= SEPTEMBER

ROW	HOLE NUMBER	FENCE TREATMENT	SOIL TREATMENT	SLOPE TREATMENT	25 CM MOISTURE READING	75 CM MOISTURE READING	150 CM MOISTURE READING
A	1	1	2	2	21.0	27.5	31.6
A	2	1	2	2	18.3	20.1	23.2
A	3	1	2	2	17.8	30.9	33.1
A	4	1	2	2	17.4	29.2	32.3
A	5	2	2	2	25.2	30.0	36.3
A	6	2	2	2	24.2	29.1	31.5
A	7	2	2	2	23.4	29.4	27.9
A	8	2	2	2	22.1	30.1	30.0
B	1	1	2	3	26.1	31.4	28.0
B	2	1	2	3	27.3	25.2	26.8
B	3	1	2	3	20.1	24.7	26.7
B	4	1	2	3	23.2	26.4	28.9
B	5	2	2	3	25.1	29.9	33.4
B	6	2	2	3	31.8	27.7	32.6
B	7	2	2	3	.	.	.
B	8	2	2	3	27.5	29.2	31.9
C	1	1	2	3	32.2	29.4	26.8
C	2	1	2	3	23.7	25.0	22.8
C	3	1	2	3	22.5	24.0	.
C	4	1	2	3	24.6	26.9	34.2
C	5	2	2	3	24.3	29.8	33.5
C	6	2	2	3	25.5	29.0	30.1
C	7	2	2	3	25.0	31.5	32.9
C	8	2	2	3	27.2	27.9	.
D	1	1	1	2	19.1	21.2	34.5
D	2	1	1	2	17.0	24.7	12.2
D	3	1	1	2	16.6	13.8	13.5
D	4	1	1	2	19.9	18.5	17.9
D	5	2	1	2	21.8	19.6	27.8
D	6	2	1	2	25.3	25.0	30.8
D	7	2	1	2	23.2	22.2	35.4
D	8	2	1	2	15.6	18.2	30.5
E	1	1	1	1	21.0	29.7	32.7
E	2	1	1	1	30.2	30.1	23.1
E	3	1	1	1	27.5	29.5	33.8
E	4	1	1	1	29.8	32.4	34.7
E	5	2	1	1	25.1	32.3	37.1
E	6	2	1	1	21.5	27.8	25.0
E	7	2	1	1	19.4	32.4	30.2
E	8	2	1	1	25.5	32.4	35.4

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENTS
SOIL MOISTURE NEUTRON PROBE DATA

REPORT YEAR= 1983 SAMPLE MONTH= OCTOBER

ROW	HOLE NUMBER	FENCE TREATMENT	SOIL TREATMENT	SLOPE TREATMENT	25 CM MOISTURE READING	75 CM MOISTURE READING	150 CM MOISTURE READING
A	1	1	2	2	23.7	27.8	31.5
A	2	1	2	2	20.7	18.7	23.5
A	3	1	2	2	23.2	29.5	32.0
A	4	1	2	2	20.5	29.8	33.0
A	5	2	2	2	27.3	30.1	36.6
A	6	2	2	2	27.8	30.0	32.2
A	7	2	2	2	27.6	30.6	28.7
A	8	2	2	2	24.5	29.4	32.4
B	1	1	2	3	29.1	31.7	28.1
B	2	1	2	3	32.8	27.1	26.0
B	3	1	2	3	25.6	25.5	26.4
B	4	1	2	3	26.4	26.2	29.7
B	5	2	2	3	27.2	29.9	34.0
B	6	2	2	3	34.4	28.3	34.4
B	7	2	2	3	.	.	.
B	8	2	2	3	26.5	29.3	28.9
C	1	1	2	3	31.7	30.1	26.8
C	2	1	2	3	24.8	25.9	17.3
C	3	1	2	3	26.9	.	.
C	4	1	2	3	26.9	28.6	34.7
C	5	2	2	3	29.6	30.1	32.8
C	6	2	2	3	28.1	28.8	30.7
C	7	2	2	3	27.3	31.3	33.0
C	8	2	2	3	26.2	28.0	30.2
D	1	1	1	2	20.0	22.0	34.4
D	2	1	1	2	20.6	22.9	13.9
D	3	1	1	2	17.8	14.0	13.1
D	4	1	1	2	20.5	17.6	18.7
D	5	2	1	2	22.4	18.9	28.2
D	6	2	1	2	25.6	22.5	29.3
D	7	2	1	2	23.4	20.7	35.0
D	8	2	1	2	20.4	17.9	28.6
E	1	1	1	1	22.1	31.3	31.8
E	2	1	1	1	31.1	30.6	23.6
E	3	1	1	1	28.6	28.6	34.9
E	4	1	1	1	33.0	35.2	34.3
E	5	2	1	1	29.7	33.8	39.0
E	6	2	1	1	24.2	28.3	24.5
E	7	2	1	1	20.9	31.4	32.2
E	8	2	1	1	25.4	32.8	35.1

APPENDIX 6-3.2

Analyses for Shrub Growth Enhancement Data

Duncan's Multiple Range Test results for significant main effect differences as identified in analyses summarized on Table 6-23. Row designations are presented on Figures 6-5 and 6-6. Access tube numbers are ordered from east to west (1-8) within rows.

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENT SOIL MOISTURE PROGRAM
MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TOP
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=218 MSE=20.2019

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=45.8561

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	ROW
	A	29.177	48	E
	A			
	A	28.676	42	B
	A			
B	A	28.470	44	C
B				
B	C	26.617	48	A
	C			
	C	24.821	48	D

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENT SOIL MOISTURE PROGRAM
MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MID
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=218 MSE=7.80725

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=45.8561

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	ROW
A	32.262	48	E
B	30.650	48	A
C	29.077	44	C
C			
C	28.421	42	B
D	22.271	48	D

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENT SOIL MOISTURE PROGRAM
MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BOT
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=218 MSE=16.1763

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=45.8561

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	ROW
	A	32.225	48	E
	A			
B	A	31.465	48	A
B				
B		30.317	42	B
B				
B		29.793	44	C
	C	25.950	48	D

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENT SOIL MOISTURE PROGRAM
MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: TOP
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=218 MSE=20.2019

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=28.5864

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	NUM
	A	29.610	30	6
	A			
B	A	28.103	30	1
B	A			
B	A	28.023	30	5
B	A			
B	A	27.687	24	7
B				
B		26.896	27	3
B				
B		26.847	30	4
B				
B		26.677	30	2
B				
B		26.141	29	8

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENT SOIL MOISTURE PROGRAM
MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: MID
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=218 MSE=7.80725

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=28.5864

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING			MEAN	N	NUM
	A		29.942	24	7
	A				
B	A		29.817	30	5
B	A				
B	A		29.120	30	6
B	A				
B	A	C	28.903	30	1
B	A	C			
B	A	C	28.469	29	8
B		C			
B		C	28.277	30	2
		C			
	D	C	27.350	30	4
	D				
	D		26.433	27	3

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - SHRUB GROWTH ENHANCEMENT SOIL MOISTURE PROGRAM
MULTIVARIATE ANALYSIS OF VARIANCE

GENERAL LINEAR MODELS PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BOT
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE.

ALPHA=0.05 DF=218 MSE=16.1763

WARNING: CELL SIZES ARE NOT EQUAL.
HARMONIC MEAN OF CELL SIZES=28.5864

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING		MEAN	N	NUM
	A	34.360	30	5
	A			
B	A	32.510	29	8
B	A			
B	A	32.283	24	7
B				
B		30.793	30	6
B				
B		30.753	30	1
B				
B		30.203	30	4
	C	27.011	27	3
	D	21.890	30	2

APPENDIX 6-4

Yellow Creek Burn Habitat Modification Study

APPENDIX 6-4.1

Cover Data

RIO BLANCO OIL SHALE COMPANY
SPECIAL STUDIES - TERRESTRIAL RESEARCH PROGRAM
YELLOW CREEK BURN RECOVERY STUDY PROJECT

BLOCK NUMBER = 1 PLOT = 10B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 1 PLOT = 11E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	5	0.050
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	10	0.100
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	30	0.305
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	25	0.253
31AUG83	KOCHIA SPECIES	FORB	INVADED	10	0.100
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 1 PLOT = 11F
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	5	0.050
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	10	0.100
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	80	0.927
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	5	0.050

****

BLOCK NUMBER = 1 PLOT = 11I
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA

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31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	10	0.100
31AUG83	KOCHIA SPECIES	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 1 PLOT = 12D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	20	0.201
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	55	0.582
31AUG83	KOCHIA SPECIES	FORB	INVADED	3	0.030
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	1	0.010

****

BLOCK NUMBER = 1 PLOT = 12F
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	30	0.305
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	KOCHIA SPECIES	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 1 PLOT = 12H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	CHRYSOTHAMNUS NAUSEOSUS	SHRUB	INVADED	20	0.201
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	85	1.016
31AUG83	KOCHIA SPECIES	FORB	INVADED	10	0.100
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	25	0.253

****

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BLOCK NUMBER = 1 PLOT = 12J
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	15	0.151
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	10	0.100
31AUG83	CHRYSOTHAMNUS NAUSEOSUS	SHRUB	INVADED	25	0.253
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	35	0.358
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	5	0.050
31AUG83	KOCHIA SPECIES	FORB	INVADED	30	0.305

****

BLOCK NUMBER = 1 PLOT = 13J
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	5	0.050
31AUG83	KOCHIA SPECIES	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 1 PLOT = 14A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	20	0.201
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	KOCHIA SPECIES	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 1 PLOT = 14H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA

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31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	10	0.100
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	20	0.201
31AUG83	CLEOME SERRULATA	FORB	INVADED	1	0.010
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	8	0.080
31AUG83	KOCHIA SPECIES	FORB	INVADED	10	0.100
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	1	0.010

****

BLOCK NUMBER = 1 PLOT = 14I
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	2	0.020
31AUG83	KOCHIA SPECIES	FORB	INVADED	75	0.848

****

BLOCK NUMBER = 1 PLOT = 14J
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	15	0.151
31AUG83	CHRYSOTHAMNUS NAUSEOSUS	SHRUB	INVADED	12	0.120
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	15	0.151
31AUG83	KOCHIA SPECIES	FORB	INVADED	10	0.100
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	25	0.253
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	2	0.020
31AUG83	SITANION HYSTRIX	GRASS	INVADED	5	0.050

****

BLOCK NUMBER = 1 PLOT = 15A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	20	0.201
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

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****

BLOCK NUMBER = 1 PLOT = 15C
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	15	0.151
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	60	0.644
31AUG83	KOCHIA SPECIES	FORB	INVADED	40	0.412

****

BLOCK NUMBER = 1 PLOT = 16E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	35	0.358
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	15	0.151
31AUG83	KOCHIA SPECIES	FORB	INVADED	25	0.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	20	0.201

****

BLOCK NUMBER = 2 PLOT = 2D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	25	0.253
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	25	0.253
31AUG83	SITANION HYSTRIX	GRASS	INVADED	3	0.030

****

BLOCK NUMBER = 2 PLOT = 2E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

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SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	10	0.100
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	45	0.467
31AUG83	KOCHIA SPECIES	FORB	INVADED	15	0.151
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	13	0.130
31AUG83	SITANION HYSTRIX	GRASS	INVADED	10	0.100
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	60	0.644
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	6	0.060

****

BLOCK NUMBER = 2 PLOT = 2G
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	30	0.305
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	KOCHIA SPECIES	FORB	INVADED	2	0.020
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	5	0.050

****

BLOCK NUMBER = 2 PLOT = 3B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	30	0.305
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	40	0.412

****

BLOCK NUMBER = 2 PLOT = 3E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	10	0.100

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31AUG83	AGROPYRON SPECIES	GRASS	INVADED	1	0.010
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	45	0.467
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	5	0.050
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 2 PLOT = 4E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	35	0.358
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	1	0.010
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	KOCHIA SPECIES	FORB	INVADED	4	0.040
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	12	0.120

****

BLOCK NUMBER = 2 PLOT = 4I
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	20	0.201
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	10	0.100
31AUG83	CHRYSOTHAMNUS NAUSEOSUS	SHRUB	INVADED	20	0.201
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	20	0.201
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	1	0.010

****

BLOCK NUMBER = 2 PLOT = 5A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	100	1.571
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	20	0.201

****

BLOCK NUMBER = 2 PLOT = 5G

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FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	25	0.253
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	5	0.050
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	30	0.305

****

BLOCK NUMBER = 2 PLOT = 6E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	5	0.050
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	45	0.467
31AUG83	CHRYSOTHAMNUS NAUSEOSUS	SHRUB	INVADED	10	0.100
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	20	0.201
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	15	0.151
31AUG83	KOCHIA SPECIES	FORB	INVADED	3	0.030

****

BLOCK NUMBER = 2 PLOT = 6F
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	10	0.100
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	10	0.100
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	10	0.100
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	25	0.253
31AUG83	KOCHIA SPECIES	FORB	INVADED	55	0.582

****

BLOCK NUMBER = 2 PLOT = 6I
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

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SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	12	0.120
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	55	0.582
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	1	0.010
31AUG83	KOCHIA SPECIES	FORB	INVADED	20	0.201
31AUG83	SITANION HYSTRIX	GRASS	INVADED	5	0.050

****

BLOCK NUMBER = 2 PLOT = 7B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	KOCHIA SPECIES	FORB	INVADED	5	0.050

****

BLOCK NUMBER = 2 PLOT = 7F
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	15	0.151
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 2 PLOT = 7H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	25	0.253
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	3	0.030
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	25	0.253
31AUG83	KOCHIA SPECIES	FORB	INVADED	20	0.201
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	3	0.030

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****

BLOCK NUMBER = 3 PLOT = 10C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	1	0.010
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	1	0.010

****

BLOCK NUMBER = 3 PLOT = 11A
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	KOCHIA SPECIES	FORB	INVADED	3	0.030
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	1	0.010

****

BLOCK NUMBER = 3 PLOT = 12E
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	SITANION HYSTRIX	GRASS	INVADED	10	0.100

****

BLOCK NUMBER = 3 PLOT = 13C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

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31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	2	0.020

****

BLOCK NUMBER = 3 PLOT = 15A
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	SITANION HYSTRIX	GRASS	INVADED	2	0.020

****

BLOCK NUMBER = 3 PLOT = 16C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	1	0.010

****

BLOCK NUMBER = 3 PLOT = 16D
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 3 PLOT = 16F
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 21 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

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BLOCK NUMBER = 4 PLOT = 4D
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	1	0.010
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 4 PLOT = 5H
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 4 PLOT = 7B
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 4 PLOT = 7C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 4 PLOT = 7D
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED

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CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	3	0.030
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 4 PLOT = 8H
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	MEDICAGO SATIVA	FORB	INVADED	3	0.030

****

BLOCK NUMBER = 4 PLOT = 8I
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	CLEOME SERRULATA	FORB	INVADED	3	0.030
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 4 PLOT = 9E
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 5 PLOT = 1H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

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SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 5 PLOT = 2D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	65	0.708
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	25	0.253

****

BLOCK NUMBER = 5 PLOT = 2H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	20	0.201
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	2	0.020

****

BLOCK NUMBER = 5 PLOT = 3C
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	15	0.151
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 5 PLOT = 4A

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FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 5 PLOT = 4B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	75	0.848
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	15	0.151

****

BLOCK NUMBER = 5 PLOT = 4C
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 5 PLOT = 5D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	75	0.848
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	15	0.151
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	1	0.010

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****

BLOCK NUMBER = 5 PLOT = 6D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	PLANTED	10	0.100
31AUG83	CLEOME SERRULATA	FORB	INVADED	1	0.010
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253

****

BLOCK NUMBER = 5 PLOT = 7B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 5 PLOT = 7D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON SPECIES	GRASS	PLANTED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	65	0.708
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	10	0.100
31AUG83	SITANION HYSTRIX	GRASS	INVADED	15	0.151

****

BLOCK NUMBER = 5 PLOT = 8A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

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BLOCK NUMBER = 5 PLOT = 8B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	5	0.050

BLOCK NUMBER = 5 PLOT = 8C
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

BLOCK NUMBER = 5 PLOT = 8F
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	35	0.358
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	5	0.050
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	3	0.030

BLOCK NUMBER = 5 PLOT = 8G
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

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BLOCK NUMBER = 6 PLOT = 9H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON CRISTATUM	GRASS	INVADED	20	0.201
31AUG83	AGROPYRON SPECIES	GRASS	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	25	0.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	25	0.253
31AUG83	SITANION HYSTRIX	GRASS	INVADED	10	0.100

BLOCK NUMBER = 6 PLOT = 10A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

BLOCK NUMBER = 6 PLOT = 11A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	UNKNOWN FORB	FORB	INVADED	3	0.030

BLOCK NUMBER = 6 PLOT = 11C
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	60	0.644

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31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	45	0.467

****

BLOCK NUMBER = 6 PLOT = 11E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	75	0.848
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	45	0.467

****

BLOCK NUMBER = 6 PLOT = 12A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	85	1.016

****

BLOCK NUMBER = 6 PLOT = 12F
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	80	0.927
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	35	0.358

****

BLOCK NUMBER = 6 PLOT = 13B
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	85	1.016

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31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 6 PLOT = 13C
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	40	0.412
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	35	0.358
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	25	0.253

****

BLOCK NUMBER = 6 PLOT = 13E
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 6 PLOT = 13H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	35	0.358
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120

****

BLOCK NUMBER = 6 PLOT = 14D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	35	0.358

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31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	85	1.016

****

BLOCK NUMBER = 6 PLOT = 14G
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	40	0.412
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	45	0.467

****

BLOCK NUMBER = 6 PLOT = 15A
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	35	0.358
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253

****

BLOCK NUMBER = 6 PLOT = 16D
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = CLOSED PLOT (CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	30	0.305
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253

****

BLOCK NUMBER = 6 PLOT = 16H
FENCE TREATMENT = FENCED-NOT GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	30	0.305

31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	80	0.927

****

BLOCK NUMBER = 7 PLOT = 2G
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	1	0.010
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	15	0.151

****

BLOCK NUMBER = 7 PLOT = 2H
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	KOELERIA SPECIES	FORB	INVADED	1	0.010
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	5	0.050
31AUG83	MEDICAGO SATIVA	FORB	PLANTED	1	0.010

****

BLOCK NUMBER = 7 PLOT = 3H
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	15	0.151

****

BLOCK NUMBER = 7 PLOT = 6H
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE	GENERIC SPECIES	GROWTH	PLANTED OR	COVER	ARSINE OF

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DATE	NAME	FORM	INVADED	DATA	COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	10	0.100

****

BLOCK NUMBER = 7 PLOT = 7C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	AGROPYRON TRICHOPHORUM	GRASS	PLANTED	1	0.010
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	80	0.927
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	40	0.412

****

BLOCK NUMBER = 7 PLOT = 9E
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	CHENOPODIUM ALBUM	FORB	INVADED	20	0.201
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	20	0.201
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	45	0.467
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 7 PLOT = 9G
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	CRUCIFERAE SPECIES	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	70	0.775
31AUG83	KOCHIA SPECIES	FORB	INVADED	15	0.151
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 7 PLOT = 9H
FENCE TREATMENT = NOT FENCED-GRAZED

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SEEDING TREATMENT = 45 KG/HA SEEDING RATE
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	CHENOPODIUM ALBUM	FORB	INVADED	30	0.305
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	40	0.412
31AUG83	KOCHIA SPECIES	FORB	INVADED	15	0.151
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	45	0.467
31AUG83	MELILOTUS OFFICINALIS	FORB	PLANTED	5	0.050

****

BLOCK NUMBER = 8 PLOT = 3A
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 8 PLOT = 3E
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

****

BLOCK NUMBER = 8 PLOT = 6E
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	ELYMUS CINEREUS	GRASS	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

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BLOCK NUMBER = 8 PLOT = 8A
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	15	0.151
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	95	1.253
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 8 PLOT = 8C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	10	0.100
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	90	1.120
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	15	0.151

****

BLOCK NUMBER = 8 PLOT = 8D
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	25	0.253
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	LEPIDIUM MONTANUM	FORB	INVADED	10	0.100

****

BLOCK NUMBER = 8 PLOT = 8H
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571

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BLOCK NUMBER = 8 PLOT = 9C
FENCE TREATMENT = NOT FENCED-GRAZED
SEEDING TREATMENT = NOT SEEDED
CAGING TREATMENT = OPEN PLOT (NOT CAGED)

SAMPLE DATE	GENERIC SPECIES NAME	GROWTH FORM	PLANTED OR INVADED	COVER DATA	ARSINE OF COVER DATA
31AUG83	DESCURAINIA RICHARDSONII	FORB	INVADED	5	0.050
31AUG83	IVA ZANTHIFOLIA	FORB	INVADED	100	1.571
31AUG83	KOCHIA SPECIES	FORB	INVADED	1	0.010

Form 1279-3
(June 1984)

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